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No. 5—Poultry Husbandry and Its Influence on the Incidence and Spread of Disease

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In a paper of very limited length it is impossible to discuss adequately the various branches of poultry husbandry, all of which have an influence on the incidence and spread of disease. These branches include methods of feeding, housing, breeding, incubation, brooding and rearing, but for the purpose of this paper it is proposed to confine the discussion to the systems of management of adult fowls in general use in this country.

In the report of the Poultry Technical Committee of Great Britain the following statement appears:—

> "In regard to the relationship between particular methods of husbandry to mortality, we find that the systems of breeding, rearing, feeding and general management vary greatly from farm to farm, but we have been unable to discover any one system or combination of systems which could be regarded as a factor influencing the extent of disease."

Many of us are not entirely in agreement with that statement, which appears to be too categorical. While the perfect system has not yet been evolved, under some systems the stock is more exposed to infection than under other systems, and to some extent the incidence of disease is in proportion to the degree of exposure to infection, other factors being equal.

The systems most commonly used are:—

1. The extensive system.
2. The semi-intensive system.
3. The intensive system.
4. The battery system.

Under the extensive system, sometimes called the free range system, fowls are kept in various types of houses and are allowed to roam at will over a relatively large area of ground. The houses usually are either of the small movable type which are shifted as the ground round the exit becomes contaminated, or large and stationary. Labour costs are less with the second type, but the individual fowl receives less attention and the risk of disease is greater. The extensive system, if not properly carried out, provides the greatest possibility for the spread of infection, for, whilst the housing and equipment can be disinfected, it is not possible to deal adequately with contaminated land.

Tuberculosis is commonly met with and its control is very difficult under the extensive system which favours the spread of this disease, and for the general farmer and dairy farmer, who usually employ this system, there is the added problem that his pigs and cattle having access to the ground may in turn become infected.

In the case of attested herds it has been suggested that the keeping of poultry on the same ground should be prohibited entirely, but probably a more progressive procedure would be to exempt such fowls as had passed the tuberculin test. This would encourage the testing of fowls generally and would be a starting point for efforts to eradicate avian tuberculosis, which is more prevalent and causes greater loss than is commonly supposed.

Fowl typhoid is very common in the islands off the north-west of Scotland, where birds have been kept extensively on the same fields for over 30 years. Unhygienic conditions prevail, the houses in most cases having earthen floors, thus rendering a proper degree of cleanliness impossible.

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On many general farms poultry are taking their place in the rotation system and this minimises the risk of soil-borne infectious diseases and parasitic infestations. The fowls derive benefit from the fresh ground, and due to the even distribution of poultry manure the fertility of the soil is improved.

An experiment which we have carried out (Johnston and Wilson, 1938) shows very strikingly the value of fresh ground. Day-old chicks were divided into two lots; one group was placed on fresh ground and the other on ground which had been in continual use for many years. On the clean ground the mortality up to a year old was 4·89 per cent.; on the old ground the mortality was 36·7 per cent. The mortality due to fowl paralysis was 0·89 per cent. compared with 14 per cent. and that due to coccidiosis was 1·1 per cent. compared with 15·4 per cent. The egg production of the birds on the new ground was very much greater.

It must be admitted that in certain cases outbreaks of disease do occur where fowls are running on ground never previously used for poultry, but this does not affect the general principle of using fresh ground wherever available.

The Semi-Extensive System.

Here birds are kept in houses set inside enclosed runs of varying size. The units are usually smaller than in the extensive system. It is a good system if overcrowding is avoided and provision is made for the runs to be rested at regular intervals, allowing the fowls to have access to fresh ground. In many cases duplicate runs are provided, the fowls being changed over at regular intervals. If fresh ground is not available, in course of time heavy losses from infectious diseases, particularly those which are soil borne, may result, and losses and unthriftiness occur from infestations with helminths and coccidia and contact with the poultry-sick land.

The use of what is known as the folding system, whereby fowls are kept in small transportable houses with runs attached and shifted to fresh ground every two days, is a modification of the semi-intensive system and is very valuable in preventing losses from parasitic diseases, while allowing the land to obtain the maximum benefit from the poultry manure.

The Intensive System.

In this system birds are kept indoors and have no access to the outside soil. They are usually kept in relatively small units, and if the system is properly applied, the risk of infectious disease is reduced to a minimum.

This system implies a rigorous selection of the birds from a health point of view and demands the feeding of a carefully balanced diet as the birds have no opportunity of adding anything to the food supplied. Scrupulous cleanliness is essential to success.

The risk of acquiring infectious diseases is reduced to a minimum and even if such a disease occurs it can be readily controlled. In the event of an outbreak of serious disease such as fowl cholera or laryngo-tracheitis, the destruction of a single unit usually prevents the disease spreading to other parts of the farm.

It is usually impossible under ordinary conditions to keep birds free from coccidiosis, but this disease can be readily controlled when the intensive system is in use.

Attention has already been drawn to the necessity for the provision of an adequate diet for birds kept under this system. If such is not available, in addition to nutritional diseases, such evils as feather plucking and cannibalism are prone to occur, and very heavy losses may ensue.

While it is well known that in many cases keeping birds intensively reduces losses due to disease, particularly on farms where no fresh ground is available, it is interesting to note that on one particular farm the death rate from all causes was reduced in one year from 74 per cent. to 14 per cent. by merely closing the entrances to the runs and confining the birds in the houses. The lowered mortality rate is explained by the absence of coccidiosis in the young and growing stock, the almost complete absence of helminths and a very material reduction in the number of cases of fowl paralysis.

It has been shown that even in the intensive system, the incidence of disease is directly proportional to the degree of isolation. Thus, in an experiment where a large number of chicks were divided into two lots, one reared under what amounted to conditions of isolation and the other under conditions similar to those which exist on a well-run intensive farm, a striking difference in mortality was noticed, the death rate in the former being practically negligible, although that in the other plant was also low. The incidence of neurolymphomatosis was very much smaller under conditions approaching isolation, and this together with the results of previous experiments, suggests that this disease may be controlled to a great extent by the measures previously mentioned.

The Battery System.

In this system, which is a modification of the intensive system, the birds are kept in

individual cages, usually in blocks of tiers, thus allowing several thousand birds to be kept under one roof. The cages have wire floors through which the droppings pass and are removed by a mechanical sweeper. The birds may have an individual food supply, but it is more common to have one hopper for every two birds. There is usually a common water supply for each tier of cages. This system gives a minimum possibility of infection, although the common water supply may be a potent factor in spreading colds. The fact that each bird is kept separately and usually has the record card attached to the cage, allows the attendant to note any symptoms of ill-health at the earliest possible opportunity, and thus a sick bird may be removed and isolated or destroyed. In the event of any infection breaking out it is relatively easy to isolate the single affected tier or block of cages. In carrying out *post-mortem* examinations of a large number of birds which have died in batteries I have not encountered any infectious diseases except contagious catarrh. In certain flocks a relatively high percentage of fowl paralysis has been encountered, but in many cases the affected birds had been reared extensively, and although it is rare to find birds harbouring internal parasites in significant numbers, it is quite common to find coccidia present in the droppings of birds which have been in the battery for some considerable time.

It is generally recognised that the extensive or semi-intensive systems are to be recommended for the production of breeding and laying stock, due to the fact that the birds are kept under more natural conditions, have access to direct sunlight and a certain amount of natural food. It must be borne in mind, however, that by proper selection and careful breeding good stock may be obtained by the use of the intensive system and, although the parent stock may possess no apparent immunity to parasitism or other diseases, the resultant chicks thrive when introduced to the extensive or semi-intensive system. The writer has had under his observation during the past ten years a flock which has been kept wholly intensively. The death rate from rearing to adult stage over this long period has been practically negligible, and there has not been any outbreak of infectious disease except contagious catarrh. During the last few years stock from this farm has been sent out for experimental purposes to specialised poultry farms and general farms in order to see if the chicks would stand up to the more rigorous conditions of the extensive and semi-intensive systems, and it has been found that the birds possess no greater susceptibility to disease than those reared under more natural conditions.

Whatever system is employed, the four chief factors in controlling or preventing disease may be summed up as: the feeding of a suitable diet, the avoidance of over-crowding, the rigorous culling of sickly or weakly birds, and the provision of a high degree of hygiene and sanitation, in combination with the prophylactic and preventive measures which research work has shown to be efficacious.

The menace of over-crowding should be obvious as the extent of an outbreak of contagious disease is directly related to the opportunities for spreading and is therefore directly proportional to the density of the population. Notwithstanding this, overcrowding is commonly met with and even in the absence of infectious disease, a sickly, undersized, parasitised flock is the result.

The need for rigorous culling cannot be too strongly emphasised. An ailing or undersized, low-producing bird is an uneconomic one and if not removed from the breeding pen may transmit to subsequent generations those undesirable qualities commonly referred to as a lack of stamina, the possession of which would tend to increase the disease incidence of the population. Failure to cull out such birds is in the opinion of many the cause of much of the loss due to non-specific diseases met with at the present time.

The importance of hygiene and sanitation should be obvious, but attention may be drawn to certain measures which might be considered essential to good husbandry.

For example, no matter how perfect the system otherwise, failure to take advantage of the agglutination test for bacillary white diarrhoea may lead to a high chick mortality, whereas by means of the test and the effective disposal of reacting birds the disease can be eliminated from the farm.

Similarly, fowl typhoid can be controlled by the agglutination test followed by vaccination of the healthy fowls, and vaccination with pigeon pox virus has proved an effective method of preventing fowl pox.

The intradermal tuberculin test is of great value in detecting early cases of tuberculosis, and it is possible to eradicate this disease from a flock by repeated testing and moving the non-reactors to fresh ground in the case of birds on free range, or by resorting to the intensive or battery system, where no fresh land is available.

References

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The contribution to the proceedings of Congress reproduced above was the second of the three short papers considered at the session held in the Concert Hall of the Empire Exhibition, Glasgow, on the morning of Friday, September 9th, 1938.

Professor G. W. Weir, J.P., M.R.C.V.S., of Glasgow, who presided over a satisfactory attendance, briefly introduced Mr. Wilson and said that it was much regretted that the opener of the discussion, Mr. Dobson, had not found it possible to attend, but he would ask the Recording Secretary to read the observations which Mr. Dobson had been good enough to forward.

In introducing his paper, Mr. Wilson said: When I was asked to give a paper on diseases of poultry I had difficulty in finding a title as so much has been written on that subject. It was suggested that it might be more interesting to consider the part played by husbandry in the spread of disease, and so the present title was chosen.

As I have explained in the paper, it was quite impossible to deal adequately with such a wide subject in the time at our disposal, so I chose merely to mention the salient features of good husbandry and to confine the paper generally to a discussion of the systems usually employed in this country.

I have tried to point out in as few words as possible what I consider the merits and the disadvantages of each system, and if I have generalised my remarks I hope that other speakers will pick out and discuss particular points which are of interest to them. By this means we can cover a relatively wide field and gain the maximum benefit from the discussion.

If I seem to have favoured the intensive system it is because of the relative ease with which parasitic and other diseases can be controlled, more especially where the available land is at a premium.

I favour the free range system wherever possible and would stress the value of what I consider the ideal system where practicable, namely, the inclusion of poultry in the rotation system of farming.

The personal factor is of inestimable importance in the success or failure of whatever system is in use on the farm.

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Discussion

Mr. N. Dobson, B.Sc., M.R.C.V.S. (Senior Research Officer, Veterinary Laboratory, Ministry of Agriculture and Fisheries, Weybridge): I have listened with great interest and appreciation to Mr. Wilson's paper on "Poultry Husbandry and Its Influence on the Incidence and Spread of Disease."

Primarily, I should like to comment, if I may, on the statement from the report of the Poultry Technical Committee, to which Mr. Wilson has drawn your attention. He finds the statement too categorical, with which view I am in partial agreement. The wording is not perfect. It was intended to convey that we had been unable to find any one system or combination of systems which in the hands of everyone, gave perfect results. It is not so much the system as the ability of the individual working that system.

In the few minutes allowed I should like to stress some of the points to which Mr. Wilson has referred.

On all types of poultry farms overcrowding at some period of the year is invariably present. The incubators continue to turn out chicks for which housing accommodation has to be found. Cockerel chicks are as numerous as pullet chicks and they overcrowd the available accommodation until such time as they can be detected, separated from the pullets, and disposed of according to the type of business in which the poultry farmer is engaged.

It has been shown in many practical ways that birds kept in overcrowded accommodation, apart from the dangers of disease, fail to gain body weight at the usual rate. Therefore it would be bad husbandry to overcrowd birds intended to produce a certain weight in, say, 16 weeks for the dressed poultry trade. It is much more important to avoid overcrowding in potential breeding stock. When overcrowding is permitted, ideal conditions are instituted for the spread of contagious or infectious diseases, and these same conditions reduce the vitality and stamina of the birds. It is a most prevalent and thoroughly bad practice.

The ventilation and supply of feeding troughs is often very inadequate in poultry houses. On entering the house one can detect immediately the vitiated atmosphere and the odour from the birds and their droppings. This condition lowers the vitality of the birds and encourages the spread of contagious catarrh and other diseases. Dry mash should not be fed to birds with a nasal discharge, owing to the danger of spreading the infection. The nasal discharge may contaminate the foodstuff and thus aid the rapid spread of the infection. Wet mash should be substituted under these conditions, because only sufficient is placed before the birds for one feed, whereas with the dry mash even a week's supply may be placed in the hoppers at one time. Feeding troughs are frequently very small in size and this causes the birds to crowd around the food, the weaker birds are unable to feed, fighting occurs and this may lead to cannibalism. These are all important points which can be corrected at little cost by the intelligent poultry farmer.

The provision of good hygienic conditions, and rigorous culling of weakly stock have been

constantly recommended, but many poultry farmers have yet much to learn about these factors, in maintaining a flock in good condition and free from disease.

Mr. Wilson has dealt at some length with the varying systems of poultry keeping and I was glad to note his reference to the introduction of poultry in a rotation system on the general farm.

I was much impressed with the paper given by Mr. Thomas H. Turney, at Harper Adams Poultry Conference last month. The author spoke on "The General Farm as the Most Suitable Place for Poultry Breeding and Rearing." I have had the privilege of seeing the author's methods in operation on a large scale on his own farm. The fundamental feature of this method is that the poultry are used in a rotation on the fields. After the birds have been on the fields for a period, the ground is ploughed and thus any infection is removed from contact with the birds. Arable farming is carried on then for a period of years and thus the accumulated fertility can be cashed. Later the land is reseeded with leafy strains of grasses and clover, producing an abundance of succulent herbage in the early spring. The birds thus have new clean pastures with an ample supply of young herbage. Chicks are put out on the grass when a few days old. By this system large numbers of wonderfully vigorous stock are being produced year by year, with a complete absence of outbreaks of disease.

This method of keeping fowls in a rotation system whether on free run or folding units, followed by ploughing the land, is undoubtedly a wonderful system where it can be employed, for producing first-class healthy birds.

Many systems are employed to-day to furnish stock for establishing or replacing birds on a farm.

In many cases eggs are purchased for incubation. This is the safest method, because if the eggs are purchased from a farm where blood testing is a routine procedure, there should be no danger of introducing bacillary white diarrhoea. Very few other diseases have been shown to be transmitted through the egg.

Other owners prefer to purchase day-old chicks. This is a satisfactory means of purchasing stock as detailed for eggs, provided the means of transit are favourable. Many chicks are sent long distances per rail by breeders and hatcheries to customers. The boxes of chicks may be delayed in transit, or be exposed on railway platforms, etc., to very severe weather conditions. Another adverse factor is overheating due to the boxes of chicks being arranged in tiers in a luggage van with little ventilation, which causes the chicks to sweat and subsequently become chilled. Also chicks may leave the producer insufficiently dried off before being placed in the boxes. These are all factors which may cause a heavy death rate on arrival at their destination, or check the subsequent progress of the chicks.

By the purchase of day-old chicks one can take advantage of sexing or sex linking for the elimination of cockerels, when only pullet chicks are required. A more recently introduced method of stock replenishment is by the purchase of three-to-four-months-old pullets. This method is not without dangers from the disease point of view. These birds may have been in contact with any of the bacterial, virus or parasitic infections and infestations on the rearing farm.

These birds should be strictly isolated from the home flock for at least three weeks, during which period they should be under the care of one who can quickly detect the onset of obvious symptoms of disease. There should be no direct contact with the home flock or even indirect contact by means of the attendant carrying infection on hands, boots, clothing, implements, etc. During the period of isolation the stock should be blood tested, tuberculin tested, and vaccinated against fowl pox.

On many farms the introduction of birds is reduced to a minimum by the purchase of stock cockerels for new blood. With these birds isolation should be maintained as previously detailed for growing stock.

The value of a rearing ground can scarcely be over-estimated. Birds are placed in the rearing fields at varying ages according to the system employed, and remain there for four to five months. When they are transferred to their laying quarters, the rearing houses should be thoroughly cleaned and disinfected and the grass kept closely cropped by sheep or other means, but no poultry allowed to graze the pasture until the young chicks in the following season are quartered there. With the use of a rearing field the dangers of serious outbreaks of "gapes" or other worm infestations and coccidiosis are greatly lessened. Further, with the long rest given this land, and close cropping from the time the birds leave and the young chicks arrive next year, the action of the sunlight and the general weathering have a most detrimental and lethal effect on parasites, bacteria or viruses. By these means the danger of carrying infectious material over from one year to another is considerably reduced.

Mr. A. P. Steele (Orkney) said that he would like to ask Mr. Wilson if there was any method of poultry husbandry by which a very high incidence of tuberculosis could be reduced to such an extent that the flocks could be cleaned up so that they would probably not be infective for bovines. In his district the farms were small; all were heavily stocked with poultry and probably 50—75 per cent. of the flocks were infected with tuberculosis. Under these circumstances, would it be sound to advise the poultry

keepers to kill off all the hens after they had completed one year's lay, with the idea of reducing open cases of tuberculosis and replenishing the flocks with reared chickens, in order that in three years or so the incidence of open tuberculosis would be so reduced that the flock probably would not be infective for the bovines?

Mr. E. L. Taylor (Weybridge) observed that, as one who was engaged in the study of parasitic diseases, he found the subject of that paper very interesting indeed. The powerful influence of external factors in disease was very clear to the parasitologist. With almost all our parasites of importance in this country it was perfectly obvious that the parasite was always there; therefore it could not be only the parasite which was causing the disease: it must be some factor in the environment which was encouraging the rapid and great multiplication of the parasite to disease-producing numbers. Taking a very broad view, then, one must come to the conclusion that all contagious disease was unnatural and was brought about by man having introduced unnatural conditions for the environment of both the animals and those parasites. In a state of nature, presumably the parasites lived fairly happily with their hosts; since they must agree that a fatal disease in an animal or bird was also a disease fatal to the parasite. It was therefore quite obvious that environment was most important. He thought that the investigation of infectious disease would develop more along those lines, and that they would try to find out the environmental factors to be taken into account in the development of the parasite. He agreed therefore very largely with what Mr. Wilson had said concerning the statement of the Poultry Technical Committee. That committee were unable to associate any growth in disease with the adoption of either the extensive or intensive system of keeping poultry. He thought, however, that though lacking any detailed knowledge of environment, they would agree with the association of certain practices and conditions with poultry disease, basing that view upon experiences of which parasitology supplied some outstanding examples, such as the fact that "gapes"—syngamiasis—now had almost completely disappeared as a result of the modern method of rearing young chicks intensively and so preventing their access to earth-worms which formed the usual reservoir for gapeworm infestation. Another obvious example was caecal coccidiosis. If the young chicks were kept on a wire floor, or were cleaned out every two days—the period required for the maturation of the oöcyst—then the disease did not occur; furthermore, observations being carried out at Weybridge at the present time suggested that the maturation of the oöcyst is inhibited in dry and warm chicken houses.

The influence of environment on disease did not, however, apply only to parasitic worms and coccidia but also to bacterial diseases and disease caused by virus. It was more obvious with parasitic disease, but the influence of environment was there, nevertheless, in every disease, and it was the unnatural environment which man had brought about which was resulting in the disharmony between the parasite and the host and its environment. He thought, therefore, that a great deal would come out of the minute study of the influence of environment or the incidence of disease and the influence of methods of husbandry on the health of our animals.

Mr. W. P. Blount (Lewes), in a communication read, in his absence, by the Recording Secretary, said that he would like to congratulate Mr. Wilson on the paper which he had given them, but regretted that he could not agree with many of his conclusions. The whole trend of the paper seemed to indicate that Mr. Wilson was favouring the intensive system of rearing, and that he feared outbreaks of contagious diseases. In his (Mr. Blount's) part of the world at least, out of every hundred investigations only about five were concerned with specific bacterial diseases—the great majority being associated with cases of fowl paralysis and intestinal parasites. One might expect that the latter would be absent where fresh ground was used and prevalent on stale farms where the same land had been used for poultry for many years. Such, however, was not the case, and indeed many of the worst cases of coccidiosis they had encountered had been in batteries, brooders and intensive houses. Further, he was convinced that in assessing the harm which followed coccidiosis, one could not rely upon the mortality rate, or even the clinical signs, for birds which were in good condition (but taken from a flock where coccidiosis had broken out some weeks or months before) showed very advanced blood changes, indicating a remarkable stimulation of the bone marrow, yet their physical condition was good and they appeared to show no external signs of the disease, although microscopical examination of the caecal or duodenal contents revealed large numbers of the parasites. One of the great disadvantages of rearing birds intensively was that it was difficult to restrict mash, such as was right and proper, and as could be done when they were outside, because when not feeding from the hopper they could then occupy their attention scratching for natural foods on the grassland.

The fact that Mr. Wilson quoted "a flock which has been kept intensively during the past ten years and shows a negligible adult death rate" was, in his opinion, not of very great value, because it was just as simple a matter to make the same statement regarding farmers whose flocks were reared extensively.

Everyone would agree with Mr. Wilson's suggestion that the tuberculin test should be employed much more frequently than at present, but there was little to indicate any increased prevalence of tuberculosis in poultry in the southern counties.

With reference to the figures relative to Johnston and Wilson's experiment (1938), did Mr. Wilson feel that it was only a coincidence that the relationship between the coccidiosis and fowl paralysis mortality was so striking?

In the use of the folding system, they had observed this year, as previously, a large number of outbreaks of prolapsus at the time pullets came into lay. Was this Mr. Wilson's experience, and did he associate it with any feeding conditions?

Finally, he hoped it was not the experience of other veterinarians that "it is usually impossible under ordinary conditions to keep birds free from coccidiosis (as opposed to the control which can be readily obtained when the intensive system is in use)" for although coccidia might be demonstrated in the droppings, coccidiosis as such could be controlled without resort to intensive systems of rearing.

Again, might he express his appreciation of Mr. Wilson's paper,

The Reply

Mr. Wilson, in reply, said that he would like to thank Mr. Dobson for his very able opening of the discussion and for giving them so many helpful suggestions and drawing their attention to many points of vital importance in attempts at preventing and controlling diseases of poultry. Mr. Dobson, as they all knew, had had an unrivalled and extensive experience of poultry husbandry in all its branches and his observations were of the utmost value. He was particularly pleased to note that Mr. Dobson had amplified his remarks on the rotation system. He had observed its operation on one of the largest farms in Scotland, and the results were excellent.

Mr. Dobson's point regarding the isolation of fresh stock was a very important one—too often neglected by the poultry farmer, with disastrous results.

He was in complete agreement with Mr. Taylor's remarks with regard to the importance of environment as a factor in disease.

Mr. Steele had raised a very important point, as tuberculosis was very difficult to control under the conditions he had described in Orkney. He had no doubt that the slaughtering of birds when they reached the age of 18 months would materially reduce the incidence of tuberculosis, but he did not think it would be an economic practice. An attempt should be made to get fresh ground and thorough disinfection of houses, utensils, etc., should be carried out. The infected ground should be left fallow for as long as possible.

In reply to Mr. Blount, he thought he had already indicated his attitude to the intensive system. It was a good system in many ways and was often a means of allowing a farmer to carry on when failure would be inevitable if the extensive system were employed. His reason for quoting an individual farm was not only to show that the system could be phenomenally successful but to show that birds reared intensively were able to stand up to the more rigorous extensive system, and to explode the theory held by so many that nothing good can come from such a system.

With regard to coccidiosis, it might have been more correct to say that it is usually impossible under ordinary conditions to keep birds free from coccidia, but he held that it was common experience that if an outbreak occurred it could be much more readily controlled when the intensive system was employed.

He was careful to point out in his paper that occasionally diseases (and he was thinking of coccidiosis) did occur on fresh ground, but he thought this was more the exception than the rule and practically every writer on the subject stressed the value of clean ground. Under the conditions described by Mr. Blount the disease should be very readily controlled.

He did not quite follow Mr. Blount's point with regard to the blood changes in coccidiosis, but for practical purposes the mortality rate and the clinical symptoms confirmed by *post-mortem* examination gave a good indication of the presence of this disease.

With regard to their experiment, he did not know if the difference in the incidence of coccidiosis and fowl paralysis was a mere coincidence or if it was due to the fact that, one lot of fowls being on contaminated ground, there was a greater risk of infection,

The Veterinary Profession and the Poultry Industry

[Prepared for Publication by the N.V.M.A. Advisory Committee on Poultry Diseases]

The recommendations contained in the Report of the Poultry Technical Committee (see *Veterinary Record*, Feb. 12th, 1938, p. 181) have now been accepted in principle by the Government and doubtless, in the near future, we shall receive details of the scheme to be put into operation. It may be well at this stage to refresh our minds on the contents of the Report.

A few years ago two Commissions were set up—one for England and Wales and one for Scotland—to report on the subject of marketing eggs and poultry. Eventually a joint Commission met and issued a report, one of their recommendations leading to the establishing by the Minister of Agriculture and the Secretary of State for Scotland of the Poultry Technical Committee. The terms of reference were—"To consider the present methods of supply and distribution of hatching eggs, day-old chicks and breeding stock in Great Britain, both generally and with particular reference to the reduction of poultry mortality and to make recommendations for the improvement of these methods." The Committee sat for many months, interviewed several individuals and representatives of poultry and other organisations, visited many poultry farms and dealt with a mass of written evidence. The N.V.M.A. presented a lengthy document and sent a deputation, consisting of three members, who were interviewed at length. The Report has been received favourably by the poultry industry.

The Committee in the Report review the present state of the poultry industry and express the opinion that the increase in mortality can be traced to the too-rapid expansion "of a machine that is breaking down under the stimulus of its own momentum." Figures are produced in support of this statement. In 1913, the poultry population was 33 million, in 1934 it had risen to 70 million and now it stands at about 60 million. The Committee point out "that the rate of expansion of a healthy industry must be governed by the ability of breeders to produce stock of sound quality." In the poultry industry the rate has far exceeded the source of supply and to meet the ever-increasing demands for stock recourse was had to unsound methods of breeding. Soon

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They had had several outbreaks of prolapsus and in some cases it had been possible to lower the incidence of the disease by reducing the protein content of the mash and raising the bran content.

after the Great War many persons with no experience of live stock were tempted to become poultry keepers. The industry at this time was prosperous and thus there arose a great demand for stock. In some cases these inexperienced poultry keepers purchased some fowls from well-known, experienced breeders and entered the birds for egg-laying competitions which, in some instances, they won. Stock from the successful competitors was thus in great demand and in many cases breeding was carried out using unsuitable stock to supply the demand. Thus unsound stock was frequently distributed throughout the country. The further demand for stock gave rise to the formation of large hatcheries, some of which paid little or no attention to the source of supply of the eggs they used. Thus more unsound stock was distributed. Dealers in eggs and poultry have also contributed to the present state of the industry by buying up large stocks of hatching eggs of unknown origin and distributing them in all parts of the country. A further cause is the lack of control over auction and dispersion sales from which stock of all kinds, diseased, unsound and otherwise, is spread throughout the country. Again, the craze for breeding from high egg-yielding fowls, irrespective of other qualifications, has also played its part in the causation of the high mortality in poultry to-day.

In dealing with the actual causes of mortality among chicks, the Committee attribute them to bacillary white diarrhoea (B.W.D.), coccidiosis and losses from indefinite causes, among which they cite errors of management giving rise to debilitated and weakly stock. Concerning B.W.D. there is little reason why it should exist at all to-day for it has been proved beyond any doubt that the use of the agglutination test will detect the "carriers" of the disease. Coccidiosis can be controlled by simple hygienic methods of management. The indefinite causes, however, are much more serious and much research is still necessary to point out methods of prevention.

It is, however, in later life that the most serious losses are found and although specific diseases are discussed in the Report, the opinion of the Committee is that non-specific diseases are of much more importance. The Report states, "We have been appalled by the recounting in all the reports we receive and in every district we visited of the losses among maturing stock and the ineffectiveness of all efforts to alleviate them. The causes of these losses are obscure and perplexing. The poultry farmer finds himself in a hopeless situation in such cases, *for veterinary scientists can give no indications of what measures to adopt to obtain immediate and lasting relief.*" Unfortunately this is true in many cases and the N.V.M.A. actually pointed this out in its written evidence submitted to the Committee and emphasised the great necessity for further research into the subject. It was pointed out, for example, that in 1934-35 the total amount expended in investigating poultry problems was £6,000 and of this sum only £2,270 was allotted for research into disease problems.

In this connection the Committee recommend that a concerted attack should be made on the causation of these heavy losses due to non-specific diseases and suggest that a single Research Institute be established to accommodate workers in all branches of science. (We understand that steps are now being taken to establish such an Institute.) The recommendation is that a poultry farm of at least 500 acres be procured and that at least 5,000 fowls are necessary for the work. It is suggested that probably the capital cost will be from £20,000 to £30,000 and the annual expenditure will be from £10,000 to £15,000.

Naturally, the results of research at such an Institute will not be forthcoming in the immediate future and so to deal in some measure with the mortality problem the Committee recommend the adoption of drastic measures in the distribution of hatching eggs and stock. It is suggested that foundation stocks of good quality be built up and that the operations of hatcheries, dealers and auction and dispersal sales be controlled. To enable such a state of affairs to be carried out, the Committee recommend that statutory control of distributing centres be instituted and that a Poultry (Stock Improvement) Commission for Great Britain be set up. The Commission will deal principally with policy and principle and should have the assistance of two Advisory Councils—one for England and Wales and one for Scotland. These Councils should be composed of persons with practical knowledge of poultry farming. (In connection with the personnel of these Councils, the N.V.M.A. has pointed out the desirability of veterinary representation.) After the necessary legislation has been passed every distributor of stock, hatching eggs, day-old chicks, etc., will be required to be registered, thus undertaking to submit to veterinary and husbandry inspection. The licence of a distributor will be revoked if the stock supplied is diseased or unfit for breeding purposes and, after an agreed date, it will be a punishable offence for unregistered breeders to distribute stock.

It is visualised that the country will be divided into areas each of which will have an inspectorate. The Report states, "The inspectors will be well qualified in poultry husbandry, competent to detect external symptoms of ill-health," but "they would not have specialised

veterinary knowledge." In the event of an inspector suspecting disease in a flock, a veterinary inspector will be called in and if his report, supported by a laboratory diagnosis, indicated that the farm was unsuitable as a distributing centre, its licence would be suspended or withdrawn. It is also suggested that panels of "official" cullers should be set up in each area. They would be men of practical poultry experience who would visit farms on the invitation of the poultry farmer, select his breeding stock and remove all birds unfit for breeding from the point of view of both health and body conformation.

Concerning veterinary inspection, the Committee assume that, in the course of time, it will be entirely undertaken by the State Veterinary Service. Meantime, however, it is suggested that the Commission might find it necessary to establish areas of practising veterinary surgeons with special knowledge of poultry diseases. It is pointed out that the number of such men is extremely limited and thus it would be necessary to establish specialised courses at appropriate centres where practitioners could become acquainted with diseases of poultry, as it is anticipated that there would be a large demand for their services.

It is further pointed out in the Report that hatcheries would also be required to register and submit to inspection. A possible method might be for the hatchery to state the farm or farms supplying it with eggs, the measures employed for the culling of breeding stock, the source of the stock cockerels used and whether the stock was tested for B.W.D.

The Commission would also require to review the position of auction markets and dispersal sales for, at the moment, there is nothing to prevent a breeder selling reactors to the B.W.D. agglutination test and other diseased birds through such channels.

As soon as possible a voluntary grading scheme will be introduced, to encourage the production of breeding stock of sound quality. It is suggested that premiums should be paid to breeders participating in this scheme at a suggested rate of 1s. per head of approved female breeding stock in the case of commercial flocks and 2s. per head in the case of pedigree stocks. The larger premium is to allow pedigree breeders to keep complete records. Approved stations will also get free veterinary inspection, *post-mortem* examinations and culling services. The fact that they are officially approved should tend to increase their sales.

One or more breeding testing stations would be established and, in due course, there would become available for distribution to breeders, stock of a good quality likely to improve the stock of the country.

It is also recommended that the work of County Poultry Inspectors in England and the Poultry Instructresses in Scotland should be reviewed. The Committee are of opinion that the present staffs are inadequate and suggest an extension of this service.

The annual cost of these schemes suggested by the Committee is estimated to be in the region of £110000. This figure is by no means unreasonable when it is realised that the annual value of the industry is about £30,000,000 and that the annual loss caused by disease is in the region of £4,000,000.

It will be observed that veterinary practitioners are included in the scheme outlined above. The N.V.M.A. realise that the amount of knowledge concerning poultry diseases possessed by veterinary practitioners may not be so up-to-date as that concerning the diseases of other animals. The Association therefore impresses on all its Divisions the importance of making arrangements whereby courses of lectures and demonstrations will be made available to their members. A number of Divisions have already started such courses. It is hoped that those Divisions which have not yet instituted courses of instruction will give the matter their immediate attention so that when the scheme comes into operation there will be available panels of practitioners in every area with the necessary knowledge of diseases of poultry.

DAIRY HERD IMPROVEMENT IN SOMERSET

An important development in the measures being taken to improve the dairy herds of Somerset was the holding of the first of a series of monthly auctions under licence of the Ministry of Agriculture, of attested and tuberculin tested dairy cattle at Taunton.

The market was formally opened by Mr. Sidney Wear, chairman of the Somerset N.F.U. Milk Committee, who said that Somerset was on the right lines in trying to produce better milk and thus improve public consumption. He assured the farmers that in trying to improve their herds they would have the support of the County Diseases of Animals Committee.

Mr. Wear announced that in Somerset there were now 218 tuberculin-tested herds in which respect they were the leading county in the country, and 81 attested herds. He wished the Taunton venture every success.

Captain Fox, of the Ministry of Agriculture, and Captain Tweed, the Ministry's divisional inspector, were present.

* * * * *

In view of the large number of outbreaks of swine fever in Suffolk since June, a specially convened meeting of the Suffolk Diseases of Animals Joint Sub-Committee, held at Ipswich, decided to apply to the Ministry of Agriculture for the making of an Infected Areas Order.

The late John Boyd Dunlop,

M.R.C.V.S.

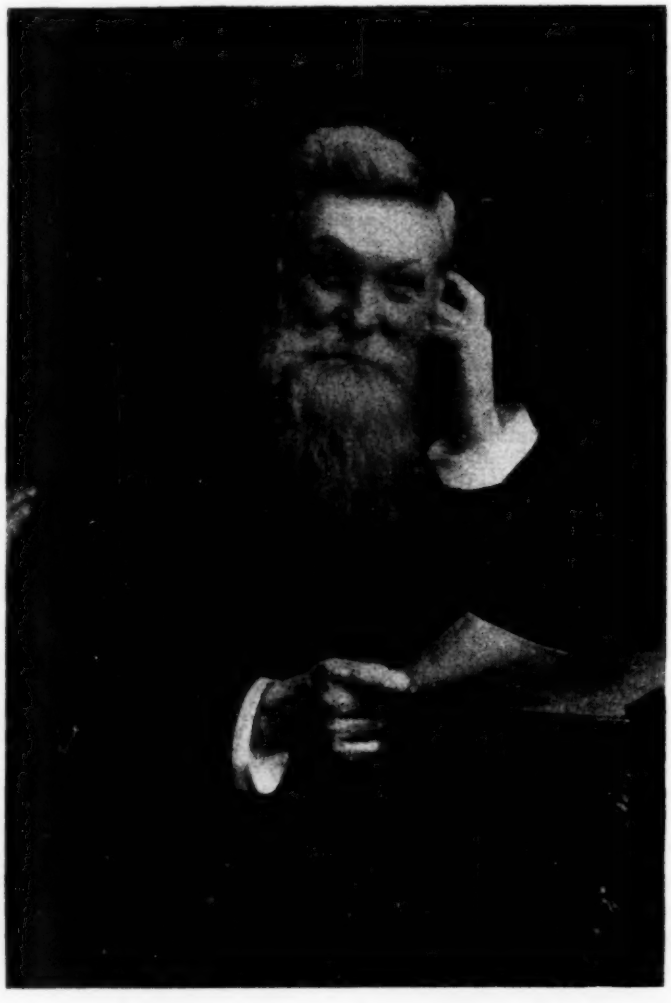
A Great Veterinarian Inventor

THE PNEUMATIC TYRE EXPERIMENTS

(*By* JEAN W. McCLINTOCK)

[This year has witnessed the world-wide celebration of the jubilee of the invention of the pneumatic tyre, with the payment of tribute to the memory of the late John Boyd Dunlop, the member of the veterinary profession whose inventive genius, revolutionising road transport, conferred an inestimable boon upon the community.

It is our privilege to publish the following account of her father's life and work, by Mrs. Jean W. McClintock, which we are sure will be read with deep interest by all members of the profession, proud as they are to recall the outstanding achievement in another sphere of one who was primarily a capable, successful and much respected veterinary practitioner.]



. . . .

As it is now 50 years since my father, the late John Boyd Dunlop, invented, made and tested his pneumatic tyre, and as he was a member of the veterinary profession, it gives me great pleasure to respond to the invitation of the Editorial Committee of the N.V.M.A. to contribute to the *Veterinary Record* some account of his life.

He was born in the village of Dreghorn, Ayrshire, on February 5th, 1840. As he arrived on this world two months before he was expected, the doctors had not much hope of his surviving infancy. However, as he said himself when 81, "I have lived to a good age and I have been blessed with a sound constitution." His forefathers were farmers, and it is said that at one time it was possible to walk from Irvine to Kilmarnock on land farmed by Dunlops of one famly. His mother was a Boyd, her mother a Roxburgh from the Highlands, and his great-grandmother a Stewart—so I think we can decide he was a Scot.

As a boy he went to Dreghorn School and later to Irvine Academy, where he worked under Dr. White from whom he acquired a love of mathematics which remained with him until the end of his life. I shall give you an instance of this. He had a puzzle of his own consisting of hundreds of figures. Had he lived a little longer I know that he intended publishing this puzzle and offering a substantial prize to anyone arriving at the correct conclusion. Well, he lost the answer: and he worked it all out again three days before he died.

He wrote and took notice of road transport very early in life. He writes, "I have always taken a great interest in agriculture and have a practical knowledge of farm work. My father had a roller for agricultural purposes over three feet in diameter. My uncle, Laird Boyd, had an old-fashioned stone roller about 14 inches in diameter. When I was about nine or ten years old I noticed that the small roller was much harder to draw and made a much greater impression per unit of area." Thus we find the qualities of observation and deduction at a very early age.

He commenced his veterinary education when very young, getting his Diploma at the Dick College, Edinburgh, in 1859 when he was 19. He had another Diploma from the Edinburgh Veterinary Medical Society, and then he became a member of the Royal College of Veterinary Surgeons in April, 1867.

I have the old certificates which are interesting if only by virtue of the old signatures.

My father commenced practice in Downpatrick, but only stayed there a year or so; his brother, also a veterinary surgeon, taking over the practice. He then went to Belfast where the practice increased steadily until it was generally considered the most extensive in Ireland. He remained in Belfast over 30 years, and during that time he received nothing but kindness from the Ulster people. He was once asked by an interviewer if his Scottish nationality was at all against him in Belfast. He answered that it was just the other way, and that his career had never been marred by the slightest unpleasantness.

The name Dunlop and Ross was up when my father left Belfast. This was at the request of his principal veterinary assistant, who had been with my father for many years: he never had a partner—just gave him the practice as he considered he had served him well. It then passed into the hands of another of my father's assistants, Mr. J. Ewing Johnston, a relative of mine through my mother, and who still carries it on most successfully at the old premises in May Street.

Of one small but pleasant incident I must tell you. I found an old letter amongst my father's papers which read as follows: "Mrs. Robertson presents compliments and hopes Mr. Dunlop will accept the accompanying stirrup seal as a souvenir of his skill in setting the shattered shoulder and limb of Mrs. Robertson's terrier 'Max'; which seemed so hopelessly injured that a veterinary surgeon of high standing declined to undertake the case. Mrs. Robertson wants to thank Mr. Dunlop for his very great kindness to her favourite dog, and to wish him most sincerely all the success he so well deserves in his profession." How a letter such as that must encourage a man! It was surprising that my father succeeded at his profession, as I have heard my mother tell how he would sometimes spend a whole afternoon in the country trying to save a sick cow which belonged to poor people, when important clients were waiting for him in his veterinary yard. Naturally my mother was anxious for him to succeed in a financial way also; nevertheless I must say that during his whole life the financial side came last.

One other incident of his early manhood—I give it in his own words: "I had some little military training at my father's request. I joined the Ayrshire Yeomanry when 18. At the week-end, when on review, an accident occurred which might have had serious results. Our troop as usual charged in two lines. I was in the second line when, charging at full gallop, a man right in front of me had his stirrup hooked on to the stirrup leather of the next trooper and was dragged off his horse. Being in close order it was impossible to pull to either side. I just slacked the reins and the horse—well trained—galloped full speed over the man's body without doing him the slightest injury." One cannot help wondering what difference would have been made to the world had this simple accident ended differently.

The Air-Tyre Experiments

Although he had been thinking all his lifetime more or less of road transport, it was only when he was about to retire at 48 that he had time to try out his experiments.

He made four important tests. He thought of enclosing air under pressure in a rubber and canvas tube placed between the road and the rim. This sounds very simple now, but each experiment my father made was after careful thought, and each evolution always with a specific reason. It would take up too much space to describe each of the experiments in detail. This is the first, in his own words: "The problem which I set myself to solve was to produce a tyre which would overcome vibration and at the same time be fast on all surfaces. My first experiment—I procured a disc of wood about 16 inches in diameter, and then purchased some sheet rubber 1/32nd of an inch thick, out of which I constructed an air tube. The air tube was secured to the periphery of the disc of wood by a covering of thin linen, which was tacked to the edges of the disc. I inflated the air tube through a small supply tube with my son's football tube, and tied the little air supply tube in the same manner as one would tie a football. I then asked my veterinary assistant in a casual way, which of the tyres would be the faster. 'The small one, of course,' he answered. I first threw the solid tyred wheel along the yard, but it did not go the full length of it. Then I threw the air-tyred disc. It went the whole length of the yard and rebounded with considerable force off the gate. My assistant said I must have used more force when I threw the air-tyred wheel, and he tried the two wheels with the same result." I myself distinctly remember the rolling of these two little wheels, though of course I was too young to know what it was all about.

Referring to his second experiment, he writes: "After this my son Johnnie, then about eleven years of age, often asked me to hurry and make air tyres for his tricycle as he wanted to race with his companions, whom he usually met after school in the People's Park. So before the end of December, 1887, I procured two strips of American elm about 9 ft. long by 3 ft. wide and ¼ in. thick and bent them in the form of a hoop, overlapping and riveting the ends together. I purchased a quantity of

sheet rubber 1/32nd in. thick; the finest and thinnest in stock, and with this I constructed two air tubes. After drawing each air tube into a canvas tube and inserting a small air supply tube, the ends of the air tube were joined with solution. Before joining the air tube I secured a thin strip of rubber over the inner end of the supply tube, and thus formed a simple non-return valve. The canvas cover or jacket, being made of two pieces, was in the form of a tube with flaps. The flaps were secured to the wooden rim with solution, and the rims secured to the driving wheels of the tricycle with copper wire. The driving wheels were 36 in. in diameter. The outer end of the air-supply tube was concealed in a recess in the rim. The canvas jacket was then covered with one fold of sheet rubber (1/32nd in. thick) with the addition of two folds of the rubber on the tread. The tyres were of 'D' section, and the rims made broad with the idea of preventing side-roll, which always has a retarding effect. The tyres were made large, so that they would not require to be inflated as hard as smaller ones, and therefore would be less liable to cut. The tyres and rims were completed and secured to the rear wheels on the night of February 28th, 1888. Johnnie, eager to have a speed trial of the machine, rode out before 10 p.m. The moon was full and the sky clear. I told him to ride over any newly laid macadam which he could find on the way. As it happened, there was an eclipse of the moon about 11 o'clock, so he came home. After the shadow on the moon had passed, he went out again and had a long run. Next morning, the tyres were carefully examined and no scratch could be found on the rubber."

For the third experiment he ordered a tricycle without driving wheels, built wheels with wooden rims and attached the tyres to them as before. In this instance there were no metal rims, and the wheels were built large in order to gear up the machine. You will appreciate that he was working under considérable difficulties. That the first practical air tyre should have come from a country where there were no cycle or rubber factories, and that the wheels were built and the air tyres made by a man who was not an engineer and had never ridden a cycle, was something of an achievement. Of course, the experience he had gained in veterinary work stood him in good stead.

My father's next move was to order a bicycle without wheels. He got strips of mild steel and had them shaped in rollers by Edlin & Co. to form the rims which were to take the pneumatic tyre. The rubber tubes and rubber for the covers were ordered from Messrs. Thornton of Belfast. He fitted the tyres himself, using best quality yacht sail cloth (I have a piece of this) for the inexpansible covers. This bicycle was subjected to ever more severe tests and was ridden for 3,000 miles. The front tyre was never punctured or removed from the rim during that time, and is now in the Royal Scottish Museum, Edinburgh. The back wheel was unfortunately lost while on loan for law purposes.

Photo. courtesy F. W. Murphy, F.I.J.

J. B. Dunlop Leading Off The "Old Timers" at 78

[Photograph taken October 31st, 1913. The machine, completed in 1889, was one of the first pneumatic-tyred racing bicycles (in reality, a light roadster). The front tyre, as shown, had not been inflated for 30 days previously. It was ridden 8,000 miles on the road, and is now in the Belfast Museum.]

Strange to say, it was an American who first appreciated his brains or thought of honouring him. He was chosen by Henry Ford as being one of the 21 greatest men who had ever lived, and his name is engraved on the façade of Mr. Ford's offices: this was done about 14 years ago.

My father came to Dublin from Belfast at the urgent request of the Dunlop directors. He resigned from the Board of the Pneumatic Co. on May 1st, 1895. He was asked to become chairman of Todd Burns, a drapery company. It was scarcely in his line, but he accepted and became very attached to his brother directors, and they to him. And as they made him welcome in the north during the earlier 30 years of his life, so did his Dublin friends take him to their heart for the last 30.

The late Sir James Percy, who knew my father in fairly early days in Belfast and then till his last ones in Dublin, writes of him thus: "There were in Belfast monuments

The Veterinary Record

November 5th, 1938.

The Loveday Report

THE ADMISSION OF STUDENTS TO UNDERGO VETERINARY TRAINING

THE Loveday Committee has wisely recommended that students accepted for admission to the veterinary schools ought to be restricted in number each year. This restriction is something which has been found eminently desirable in all countries, and has long been rigidly enforced in some.

Its intention is at least three-fold: firstly, to provide enough, but only enough, qualified veterinarians each year to meet the needs of the country; secondly, to admit no more than can be properly taught with the resources available; and thirdly, to admit such candidates only as are likely to absorb readily the training given at these schools and afterwards find no hardship or irksomeness in the ordinary exercise of their calling.

(1) We do not think the recommendations made by the Committee regarding the first of these considerations calls for any adverse criticism. Their forecast is an annual demand for newly qualified veterinarians amounting to about 150 during the quinquennium (1937-8 to 1941-2) and thereafter at about 115. They qualify this estimate by saying that "the growth of demand has, however, exceeded expectations in the past and may do so again." In our view this qualification needs very careful examination for an apparent growth in demand is sometimes unreal. Several considerations lead us to believe that the large accession of students to the veterinary schools during the post-War years was due to temporary and adventitious factors. Among these we may mention the post-War facilities then afforded to ex-Service men, the sudden increase recently in the demands for qualified veterinarians for public appointments, the attractions of small-animal practice in towns, especially for women, the publicity given to the profession by the heads of certain schools, and the effects of the trade slump which brought into the professions young people who would otherwise probably have gone into business. For some time, all veterinary graduates have been readily absorbed into employment, but in spite of the difficulties of some practitioners in obtaining qualified assistants at the moment, nobody will wish a state of affairs to continue which may lead to a flooding of the market with all its obvious ills. Far better must it be to concentrate now, at this opportune moment, on restriction with the definite object of producing a crop of graduates with the highest possible efficiency to meet modern requirements.

The relevant paragraph (52) of the Report, which deals specifically with numbers of students, reads:—

". . . We make the general recommendation that subject to the acceptance of our detailed proposals concerning them, the *four Veterinary Schools of Camden Town, Liverpool, Edinburgh and (in a reorganised form) Glasgow which provide clinical instruction, and the proposed scheme of pre-clinical studies at Cambridge, should be recognised for aid from the Exchequer.*"

"We recommend further that *as a condition of such aid the Schools be required so to reduce their admissions that at the end of five years their total numbers shall be, as nearly as possible, at Camden Town* 250, *at Liverpool* 125, *at the Dick College* 225, *and at Glasgow* 200, *post-diploma students and Cambridge graduates coming for clinical training to be supernumerary to these quotas.*"

We shall have something to say in this regard in a later editorial, but it should be pointed out that the block grants recommended safeguard the different schools from any loss of income arising from the reduction in the number of students.

(2) The problem of how to create teaching resources sufficient to accommodate the estimated annual inflow of veterinary students is one which has taken up a very large part of the Committee's attention. They say (para. 9):

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to men who deserved their adoration less than Mr. Dunlop, whose work and character reminded him of Pope's epitaph of Addison:—

O Soul Sincere.
In action faithful, and in honour clear,
Who broke no promise, served no private end,
Who gained no title, and who lost no friend.

I am more than grateful to Sir James for speaking like this, and I wish to thank the National Veterinary Medical Association of Great Britain and Ireland for asking me to write about my father. He was proud of belonging to a noble profession.

"At the schools the teaching staffs are inadequate and in many instances the stipends are low and out of all proportion to the responsibilities which the posts carry; proper facilities for clinical training and for the practical side of animal husbandry are everywhere lacking; under the pressure of financial stringency students have been admitted in excessive numbers, with the result that classrooms and laboratories are overcrowded; and teachers have neither time nor facilities for research."

We shall need, in further reviews, to refer again to the steps which the Committee have recommended to remove the above "formidable indictment."

(3) One of the most admirable features of the Report under review is that which deals with the mode of initial selection of the veterinary student. They discuss this from two standpoints: (*a*) his positive educational attainments; and (*b*) his natural inclinations.

(*a*) The former is dismissed briefly, in a very short paragraph (13): —

"The extensive superstructure of training in the many sciences embraced within the term 'veterinary science' requires to be built on a firm foundation of general education if it is to have its full value; it is satisfactory to record that the future veterinary student is now required to have passed an examination of matriculation standard before he enters on his veterinary training."

Although some may hold the view that the entrance examination ought to have been raised to matriculation standard some years ago, the Loveday Committee express, we feel, a well-deserved tribute to the Council, R.C.V.S., for their efforts in steadily raising its standard. The very large proportion of failures at the successive professional examinations, with the consequent heavy drag upon the teaching staffs, is evidence that the standard of general education demanded had long been below the level of the subsequent professional examinations planned by the Council.

This question of the preliminary educational attainments to be demanded in the veterinary student might, with advantage, have been discussed at greater length by the Loveday Committee, particularly in view of the proposed scheme for the establishment of a Veterinary School at Cambridge University. This scheme was originally proposed to satisfy the need for professional men of high qualifications to undertake research. Under this scheme (para. 81) "a student, having taken his first M.B. examination while at school, would embark upon a Tripos course at Cambridge, in subjects which would secure certain exemptions from the examinations for the M.R.C.V.S. . . ." The Loveday Committee accepted the main points in these proposals, but we apprehend some disquiet in the future if they are carried out as has been suggested. They will tend, *ab initio*, to split the profession into two categories, the first comprising graduates with the "high qualifications" of Cambridge, and the second, those who, by inference, and in the minds of the public will have "low qualifications." We think that this must be surely inconsistent with the ideal admirably projected by the Committee elsewhere throughout their Report, which, as we understand it, is to turn out uniformly from all the veterinary schools graduates who shall have, in the eye of the public, the highest possible qualifications.

It must be confessed that the intention to exact evidence of some special attainment in the natural sciences—the first M.B. examination—over and above the matriculation examination is one which strongly commends itself for general consideration and adoption. The facilities for secondary school education during the last two or three decades have become so widespread and the examinations so well standardised that it is not beyond the reach of a child of normal intelligence and ability to pass an examination in chemistry, physics and biology of matriculation standard. It is, we think, important that the student who is accepted to undergo a veterinary training is one whose inclinations move him to take up and pursue the study of the natural sciences, and especially the biological sciences. By the general adoption of the first M.B. standard as that necessary for entrance into any veterinary school, the suggested degrees for veterinary students could all be raised—as at Cambridge—to honours standard, and the tendency which we have discussed to divide the profession into two thereby avoided.

(*b*) The intention behind the recommendations made by the Loveday Committee in regard to the selection of entrants according to their natural bent and upbringing is beyond all praise. It is an aspect upon which we had feared, quite wrongly, the views of the Committee would have been lacking. It has been left to them, however, to state, for the first time authoritatively in this country, what has long been weighing heavily on the minds

of agriculturists as well as practising veterinary surgeons.

The short chapter entitled "The qualities required in the veterinary surgeon" (Chapter 3) clearly shows that the Committee have approached their subject with sympathy and clear understanding. The following passages merit reproduction at length:—

"12. In every branch of the profession the first essentials are a liking for animals, a thorough knowledge of their ways, and ability to handle them and gain their confidence. The boy who comes from a farm learns almost unconsciously the signs of health in animals and the methods adopted to maintain them in health; and he obtains an insight into the very intimate relationship between the care of animals and general agriculture. All this knowledge, which comes to him as a normal part of his experience in his early years, admirably suits him for training as a veterinarian. The son of a practising veterinary surgeon enjoys similar advantages. Lack of such early contacts in veterinary students coming from towns is a serious handicap during their years of study and one which is often difficult to remove later in life. We therefore paid much attention to the problem of training the town boy."

"109. The schools will, in limiting numbers, be in a position to exercise greater discrimination in the admission of students, and we recommend that *ceteris paribus* they should give preference to country boys. In view of the waiting lists which may be expected to result from the limitation of numbers the schools will have information a considerable time beforehand of those who desire admission and the parents of town boys should be advised to give their sons experience on farms before entry; in the selection from town-bred students preference should be given *ceteris paribus* to those who have had this preliminary farming experience."

We make no apology for quoting these passages at length, because many of our older readers will doubtless feel that the recommendations contained in them furnish the key to the whole problem of reorientation in the system of veterinary education which is now demanded. It is earnestly hoped that the machinery recommended to be set up by the Committee for the selection of entrants will give full effect to the intentions underlying them. There is perhaps an aspect of these recommendations to which the Committee might have given further attention. The whole scheme of training for a veterinary career has become very costly to parents. To those who reside a long distance from the educational centres it will mean a total expenditure that will fall not far short of £1,500. In the economic conditions prevailing, this sum can be found least readily by the very class of people whose children ought to be encouraged to enter the veterinary profession, namely, farmers. The Committee's qualification "*ceteris paribus*" may sometimes result in no little hardship to these children, who often have not the same facilities as those living in towns for adequate secondary school education readily within reach.

On the other hand, the cost of education can be met most readily by certain classes of parents whose children ought not to be encouraged to flood the veterinary schools. These are the relatively affluent town and suburban classes, long accustomed to short daily working hours in offices or businesses and often residing within easy reach of the veterinary schools as they are at present situated. The prospects of employment in the many appointments that have become available, again with apparently short hours, have undoubtedly lured such parents to cause their sons to proceed to a veterinary career.

For these and other good reasons, we would commend to the attention of Government, County Councils, and other bodies, the advisability of liberally awarding scholarships to the sons of farmers. Such a decision affords Government a splendid opportunity to show a real sympathy with the agricultural community. Doubtless bodies like the National Farmers' Union will not be backward in advocating support of this plea.

For those who feel a genuine urge to enter upon a veterinary career and who have been denied opportunities through no fault of their own to come into close daily contact with farm animals, we submit, all that the Loveday Committee say about the provision of facilities for undergoing farm pupilage is wise and prudent.

On the subject of women students, although some women students have done brilliantly in their professional examinations at the schools in recent years and some have succeeded exceptionally well in small-animal practice in towns, the following sentence will perhaps be read by some as an indication of the characteristically economic outlook of the Committee:

". . . We could not justify the expenditure of public money on the training of women for work among dogs and cats; the number of women students admitted by the schools should be small."

The Veterinary Profession and the Poultry Industry

ELSEWHERE in this issue of the *Veterinary Record* we publish a note in which the recommendations contained in the Report of the Technical Committee are summarised. We felt that, now the recommendations have been accepted in principle by the Government, it might be of value to the profession to be reminded of the findings of the Committee and of the methods suggested by the Committee for improving the present unsatisfactory position concerning the health of poultry in this country.

Several suggestions in the Report are of much importance, not the least of which is the part to be played by the veterinary profession in the schemes. The registration of all distributors of eggs for hatching, day-old chicks and breeding stock generally necessitates thorough inspection of the breeding stocks in the country and it is recommended that the veterinary practitioner is brought into the scheme for the examination of such stocks from a health point of view.

It may be that there exists some difference of opinion regarding the exact part which members of the veterinary profession should play in this part of the scheme. As has already been recorded in this journal (see *Veterinary Record*, April 30th, 1938, p. 511), the Council N.V.M.A. passed resolutions concerning the employment of whole-time veterinary officers in the various areas with, under their direction, a staff of full-time lay inspectors "well qualified in poultry husbandry" and a staff of veterinary practitioners (part-time). It may not be possible to inaugurate such a scheme in its entirety, though final decisions in the matter have not yet been made. It will be for the Poultry (Stock Improvement) Commission with its Advisory Councils to consider the matter at a later date. In the meantime, however, we are assured that the veterinary practitioner will be used to a considerable extent and it behoves us to be prepared to undertake the necessary duties when the scheme comes into being.

The N.V.M.A., which has the interests of the poultry industry very much at heart, has pointed out to its members, through the Secretaries of its various Divisions, the necessity for early action in inaugurating courses of lectures, demonstrations, etc., by means of which veterinary practitioners in all districts of the country may have their acquaintance with poultry diseases and poultry husbandry generally brought up to date. We realise, of course, that some practitioners are well acquainted with these subjects but the fact remains that our knowledge of poultry husbandry and disease may not be so up-to-date as that concerning other types of domesticated animals, for within recent years much progress has been made in the study of this branch of animal husbandry. The response of the Divisions of the N.V.M.A. to our appeal has been very gratifying. A number commenced such courses of instruction almost at once and during the present winter season other Divisions are busy on the subject. It is felt, however, that some Divisions have not yet considered the matter and it is to them that we now appeal to give the subject serious thought and to arrange for the holding of such courses without delay. It is impossible, of course, at the present juncture, to forecast when the scheme visualised by the Poultry Technical Committee will come into being, but now that the Government has accepted the recommendations in principle, there is much likelihood of early arrangements being made. The Divisions who have arranged the necessary courses are making use of the services of veterinary surgeons who have specialised in matters pertaining to poultry health and disease and are also indebted to experts, other than veterinary surgeons, who have worked on problems of poultry feeding, management, etc. The N.V.M.A. is most anxious that *every* Division should give its members the opportunity of participating in this scheme and will be pleased to advise the Honorary Secretaries on the matter and assist them in making the necessary arrangements.

N.V.M.A. SPECIAL COMMITTEE ON TUBERCULIN TESTS

The Special Committee recently appointed by the Council of the Association to investigate the technique, procedure and interpretations of the various tuberculin tests, and to consider other related matters, including the wording of tuberculin test certificates, held its first meeting at 36, Gordon Square, W.C.1, on October 25th.

Satisfactory progress was made at this meeting, and the Committee looks forward to the co-operation of members of the profession in providing any information which it may require at a later date.

CLINICAL COMMUNICATION

Heavy Sheep Losses Following the Use of Artificial Manure

GEO. ELMES, F.R.C.V.S.,
ST. ALBANS

An arable farm that was laid down to grass in 1933 was heavily stocked with sheep in 1934. All went well until October when the whole of the farm pastures were heavily dressed with ground African phosphatic rock. There was no rain after application and when I visited the farm the grass leaves were burnt, dandelion leaves shrivelled and mushrooms scorched up and the powder still visible in the ground and grass.

A number of sheep had died and on several of these *post-mortem* examination was made: all showed acute gastritis with very few stomach or intestinal worms. A number of sheep looked ill, very dejected and scouring.

Subsequently, the stomachs and bowels of four sheep were sent to the School of Parasitology and the report was that although stomach and bowel worms were present they were not in sufficient numbers to cause trouble.

In November, Mr. F. Blakemore of the Department of Animal Pathology, Cambridge, visited and made *post-mortem* examinations, also taking for investigation stomachs and bowels.

Lated on in December, a number of sheep were coughing with lung worm and all were injected intratracheally.

Towards the end of the month, stomach worm and trichostrongyles appeared in considerable numbers and the remaining sheep were treated with copper sulphate. Eventually, about 20 sheep out of a flock of 400 recovered but they were moved on to fresh ground.

Analysis of stomachs and bowels was carried out by Dr. Dyer but no poisonous substance was found.

This case appears to prove the suggestion of Professor Miller that heavy dressing with artificials causes gastritis by irritation of the particles. (See article in *The Field*, February 26th, 1938.)

A veterinary surgeon summoned at Croydon for driving at 38 m.p.h. said he had been called out to a dog run over in the street.

"Doctors and veterinary surgeons," said the defending solicitor, "are, I submit, more or less privileged when answering urgent calls to relieve suffering."

The case was dismissed on payment of 4s. costs.

ABSTRACTS

[**Studies on Duck Septicaemia.** Graham, R., Brandly, C. A., and Dunlap, G. L. (1938.) *Cornell Vet.* **28.** 1. 1-6. (3 refs., 3 figs.)]

The disease described occurred in growing and fattening ducks, but did not affect ducklings or laying stock. There was general debility, emaciation, diarrhoea and often death within 48 hours; some birds suffered from a more chronic type of illness and these tended to recover. The *post-mortem* findings were those of a septicaemia and were not apparently pathognomonic.

A Gram-negative bacillus resembling so-called *Pf. anatipestifer*, previously described by Hendrickson and Hilbert, was isolated in pure culture from the heart blood, spleen, liver, etc., of affected birds. This organism proved pathogenic to young ducks when inoculated intraperitoneally.

Recovered ducks were resistant to artificial infection and some degree of immunity followed the inoculation of vaccine consisting of formolised culture.

F. W. P.

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[**Three Cases of Nodular Necrosis (Roeckl's Granuloma) in the Muscles of Cattle.** Hole, Norman H. (1938.) *J. Comp. Path. and Therap.* **51.** 1. 9-22. (12 photographs).]

Though not contributing towards solution of the problem regarding the aetiology of so-called Roeckl's granuloma, this paper records the occurrence of three cases of the condition in Guernsey cows.

During life the lesions may be seen, and on palpation are firm, round, cold and painless bodies up to the size of a tangerine. As a rule, they are not adherent to the overlying skin and cause no external ulceration or loss of hair. They are distributed over the legs, trunk and neck and may be very numerous in the tail. Absence of superficial ulceration and difference in distribution distinguish these lesions from those of skin-lesion tuberculin reactors.

A significant feature is the degree of regression which the nodules may undergo. In one instance, visible lesions appeared and reached their maximum size in about 6 months, following which they gradually disappeared till 4 months later they could be neither seen nor felt.

The lesion, which in reality is not a granuloma, appears to be a focal necrosis in muscle which becomes encapsulated and invaded by granulation tissue. To the naked eye a typical nodule consists of a tough, fibrous capsule with a centre of yellow, laminated, necrotic material in which there may be a few spots of calcification. Most were found to lie directly under the muscle

sheath, though some were deep. Where regression had been evident, nodules appeared to have been extruded from the muscle and lay free under the fascia. Microscopically, four zones were recognised—centrally situated necrotic material interwoven with fine strands of connective tissue, surrounded by a zone of foam cells, leucocytes, small round cells, plasma cells and eosinophils, then some loose connective tissue and round the periphery, a capsule of dense fibrous tissue. Multinucleate (foreign body) giant cells were occasionally present in the zone of foam cells. There was no marked infiltration by eosinophils. Loss of central whorling in some nodules, which was due to dense fibrosis, was taken to represent a more advanced stage of resorption.

The use of special stains for bacteria, cultivation and animal inoculation of material from the lesions failed to reveal the presence of a pathogen. It is suggested that as the lesions examined are advanced, it is possible that the causative agent is dead. Examination of nodules at an earlier stage might prove more fruitful.

J. W. W.

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[Pathological Anatomy of Contagious Pleuropneumonia of Goats. Baumann, R. (1938.) *Arch. Tierheilk.* **73.** 4. 285-294.]

Infectious pleuropneumonia in goats has been recognised since the latter part of the 19th century. It was first just described in Algiers in 1874, and was later recorded in various parts of Germany (1894) where it reappeared as a solitary outbreak in 1918. It also occurs in Italy, and in various parts of Africa and Asia Minor. In 1920, it was introduced into Greece by the importation of goats from Asia Minor and eventually reached Bulgaria.

A detailed study of the pathological anatomy is given on the basis of the author's experience in a severe outbreak in Anatolia (Asia Minor) during the winter of 1936-7. The disease always occurs in mountainous country and appears to be favoured by large day and night temperature differences. The aetiological agent is said to be a filterable virus.

The lesions commence as multiple peribronchial pneumonic foci, which, when superficial, are covered by a localised area of fibrinous pleuritis. There is usually a serous exudate in the pleural cavities. Necrosis of areas of lung tissue very rapidly occurs, often followed by liquefaction. Formation of sequestra as in contagious bovine pleuro-pneumonia is not seen. Distension of the interlobular connective tissue septa with exudate results, however, in an appearance similar to that seen in the latter disease. There is frequently a diphtheritic rhinitis.

Histologically in the early stages the bronchopneumonic character of the lesions is clearly seen and is followed by necrosis. Foci of perivascular organisation as in contagious bovine pleuropneumonia are commonly found.

A variety of bacteria are found in advanced cases, especially Pasteurella and, in Turkey, the disease is frequently reported incorrectly as pasteurellosis.

E. G. W.

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[Treatment of Mastitis. Klimmer, M., and Haupt, H. (1938.) *Arch. Tierhlk.* **73.** 139.]

A study was made of the prevalence and treatment of streptococcus mastitis in a dairy herd which was maintained under conditions which were not considered hygienic. The herd was originally composed of 51 cows, 70 per cent. of which were affected with mastitis. During three years' observation, replacement of 51 head of stock was made by 49 heifers. Thirty-nine of these contracted the disease, seven heifers showing infection at the beginning of their first lactation and the remainder by the end of this period. Of these newly infected animals, 54 per cent. showed disease in one quarter, 28 per cent. in two quarters, 8 per cent. in three and 10 per cent. in four. In 13 animals the infection disappeared spontaneously. Treatment of the disease consisted of infusing the infected quarters with a solution of entozon (1 : 1,250): and of 218 quarters treated during lactation 31 per cent. were cured, and of 74 quarters treated when dry 47 per cent. gave similar results.

S. J. E.

* * * * *

[Foot-rot in Sheep: Causal Agent; Viability of the Contagium; Control. Beveridge, W. I. B. (1938.) *J. Coun. Sci. and Indust. Res.* **2.** 1. 1-20.]

Abstraction could not possibly do justice to this comprehensive report and those particularly interested should consult the original.

A short account of the complex aetiology of foot-rot takes the place of an introduction. The investigations recorded cast suspicion on at least three organisms, namely, *Spirochaeta penortha*, a "virus-like" organism, and a motile fusiform organism which is apparently not *F. necrophorus*. With none of these either together or separately was it possible to set up foot-rot though this was possible by adding soil from typical cases. These findings suggested that the methods of cultivation adopted were possibly unsatisfactory for the growth of the true causal agent and after a number of experiments a medium consisting of 25 per cent. serum-V.F. agar proved satisfactory. Incubation was carried out anaerobically in the presence of not less

than 5 per cent. CO_2 in atmosphere. A sparse growth of a Gram-negative, non-sporing anaerobe was obtained. Until classification has been effected, Beveridge intends to refer to this as "organism K."

A very mild foot-rot was produced by rubbing organism K alone or with the fusiform organism into scarified feet but when *Sp. penortha* is present the severe form of the disease is established.

The second part of this report deals with the viability of the infective agent in natural material.

(1) Material from foot lesions remains infective, in moist conditions, up to 24 hours (as shown by scarification and inoculation tests), but was innocuous by the fourth day.

(2) By mixing similar material with soil and water and producing a mud and keeping on the laboratory bench, infectivity was lost in from one to three weeks. Mud from pens where infected sheep had been became non-infective after 24 hours.

(3) Pastures lost their infectivity within 9 hours from the time affected animals were removed, though if very wet this period was as long as 24 hours.

(4) A limited number of experiments designed to test the persistence of the infective agent in cutaneous wounds gave negative results after three days though in superficial skin lesions between the digits infective material could be collected up to 7½ months after contamination.

There appears to be no immunity to re-infection after an attack, a recently cured animal being susceptible to re-inoculation. Some animals may also be carriers for as long as 3½ years.

The third section of this publication summarises the foregoing findings and elaborates control measures based upon these. This section is adequately dealt with in the annotation by F. C. Minett in the *Veterinary Record* of April 16th, 1938 (**50**, 16, 464-467).

N. S. B.

Two British Friesian heifers have now beaten the standing record for a first-calver of 2,356 gallons in 365 days. The record-breakers are:—

Vermuyden Buttercup, born in March, 1935, owned by Mr. W. S. Furness, of Ecclesall, Sheffield. She had her first calf on August 24th, 1937, and has since given 2,560 gallons in 365 days. At that stage she was still yielding five gallons daily.

Barwyke Butterfly, born in March, 1935, was bred and is still owned by Messrs. W. Curtis and Son, of Rainham, Essex. After a distinguished show career Barwyke Butterfly had her first calf on October 2nd, 1937. Since then she won first at the Royal Show of 1938, and has produced 2,445 gallons in 365 days, when she was still producing 4½ gallons daily.

REVIEWS

["**Modern Equine Dentistry.**" (Trans. title.) By Dr. E. Becker, Animal Clinic, Sarstedt, Germany. Published by Schaper, Hannover, 1938. pp. 113 with 54 figs. Price RM. 6.)]

It is seldom indeed that a new veterinary work records such a break with tradition and such a great advance in technique as does this book. It is a monument to the author's enthusiasm and industry and carries us at one bound into the realms of human dental technique, in that methods used in the latter have been successfully adapted for horses.

The first 20 pages are taken up with an introduction and cursory review of the literature; then succeeding sections deal with equipment, technical methods used and the various diseases of the teeth and jaws with their treatment.

The novelties described include the following: transportable stocks for restraint, a mouth gag, instruments for grinding away sharp points, drills and apparatus for preparing fillings for cavities.

The stocks are of steel tubing and have suitable parts for holding the horse's head firmly and a vessel for the supply of cold water by gravity to cool teeth during drilling. The whole is transported on a two-wheel trailer attached to a motor car. The gag consists of long steel arms hinged together opposite the jaw articulations on each side and acting by means of plates bearing on the incisor teeth, leverage being obtained by hand-operated screw devices at the level of the front premolars.

Steel tooth rasps are roundly condemned as inefficient, both the simple hand models and those driven by machine. The steel points wear down even after a few minutes' use. Becker uses grinding wheels composed of carborundum grains (embedded in a ceramic base) which never get blunt. These grinding wheels, of small diameter, are mounted on the end of steel tubes, are electrically-driven and can be easily passed along the dental arcade.

Cavities in teeth are drilled out as in human dentistry and filled with either copper-mercury amalgam which is prepared for use with a pestle and mortar, or with inlays of a metallic alloy which is melted in a small furnace and shaped by pouring it into an impression model of the arcade previously prepared.

The author has tested his equipment thoroughly and claims that his methods are perfectly feasible for country practice, provided that electric current is available. He says nothing about such major operations as tooth extractions of a difficult kind and does not mention local anaesthesia, limiting himself to what he calls conservative tooth treatment, such as can be carried out on the standing and fully conscious patient.

The review of literature is not as complete as is desirable, nothing being said about the works of Noel Pillers nor of a fellow countryman of the author, Leue of Oels in Silesia, who has done much original work on equine dentistry.

The book can be recommended to veterinary surgeons, whether or not they can read German, as the many figures themselves explain a great deal.

The above brief note gives some idea of the technique and it can be seen how many and varied are the dental operations that can be undertaken.

* * * * *

["**The Sealyham Terrier.**" By Winifred Barber. Our Dogs Publishing Co., Ltd., Oxford Road Station Approach, Manchester. Price 4s. 6d. net.]

Written as a guide to the would-be breeder of Sealyhams, we can thoroughly recommend this small book to beginners, not only in this breed, but also in other breeds of the smaller terriers. It is well illustrated by numerous photographs, and the text is straightforward and helpful. So often this class of handbook relies on old and unenlightened maxims and rule-of-thumb methods, and it is therefore all the more refreshing to find that the observations on such matters as kennel management, breeding and minor ailments, are based on sound common sense and experience.

H.M. STATIONERY OFFICE PUBLICATIONS

The undermentioned have been published recently. Copies can be purchased through any bookseller, or directly from H.M. Stationery Office, at the following addresses: London: Adastral House, Kingsway, W.C.2, and 28, Abingdon Street, S.W.1: Cardiff: 1, St. Andrew's Crescent; Manchester: York Street; Edinburgh: 120, George Street.

	Price net s.	d.	*Post free* s.	d.
Agriculture and Fisheries, Ministry of:				
Livestock Commission, First Report, August 1st, 1937 to March 31st, 1938. (24-144-0-38)	1	0	1	1
Health for Scotland, Department of:				
Foods Circular 55. Milk (Special Designations) Order (Scotland), 1936; Milk (Special Designations) Amendment Order (No. 2) (Scotland), 1938. September 29th, 1938. (49-9999)	0	1	0	1½
Statutory Rules and Orders, 1938:				
1158/S.58. Milk (Special Designations) Amendment Order (No. 2) (Scotland), dated September 22nd, 1938	0	1	0	1½
1141. Animal. The Importation of Canadian Cattle (Amendment) Order, dated September 15th, 1938 ...	0	1	0	1½

REPORT

Southern Rhodesia

REPORT OF THE CHIEF VETERINARY OFFICER, FOR THE YEAR 1937

The staff consists of 13 veterinarians, 70 cattle inspectors, and a corresponding clerical staff. Of the former, two are engaged on administrative duties and two are wholly employed on meat inspection work, leaving nine veterinary officers for field duty, a number which is barely sufficient for an important agricultural country with its multitudinous veterinary problems, the income of which is largely derived from its export of animals, and animal products.

The year under review was a period of drought, for practically no rain fell throughout the territory from March to December. This meant a hard winter for stock, followed by a shortage of grazing, and an acute shortage of water in certain areas. Grass fires were numerous and this added to the general lack of grazing. Consequently towards the end of the year cattle were in very poor condition and losses from poverty were considerable, while from October onward, the export companies found it increasingly difficult to obtain supplies to meet their contracts.

The year opened under favourable conditions for of the two major epizoötics which have troubled the department in recent years, foot-and-mouth disease and African coast fever, there had been no case of the former since the previous July, and apart from five areas which were undergoing periods of quarantine prior to release there was only one active centre of African coast fever. This state of affairs did not last long, for in January foot-and-mouth diesase was discovered in the Victoria district, and this was followed by a succession of other small outbreaks, while six fresh centres of African coast fever infection occurred during the year.

In view of the various methods employed in dealing with foot-and-mouth outbreaks in countries on the mainland of the Continent of Europe, none of which can be regarded as entirely satisfactory, we record the precautions which have proved successful in S. Rhodesia and the adjoining States. They are:—

(1) Concentration of infected and in-contact herds and placing each mob of cattle under the control of special native police.

(2) Establishment of cordons of special native police under European supervision, around the infected and the cattle-free areas.

(3) Inoculation of all infected and in-contact cattle by the intra-mucosal method, and the branding of such cattle.

(4) Slaughter of all calves born during the period of infection after inoculation.

(5) Prohibition of all movement of animals and animal and vegetable products within the quarantined areas for a definite period after completion of inoculation.

(6) Institution of disinfection stations at all points of exit from the infected areas.

The report reveals an experiment showing that foot-and-mouth disease can actually be conveyed to cattle from large game. As long ago as 1933, koodoo, wildebeeste and springbuck were found, during the Bechuanaland Protectorate outbreak, with foot lesions which were indistinguishable from those found on cattle. On several occasions natives reported that springbuck were so lame that they were easily caught by their hunting dogs, and at the time it was feared that the disease might be spread by these animals. More recently the big game in the Kruger National Park in the northern Transvaal were found infected and the same fears were expressed.

To settle a point which caused much controversy, the department carried out the following experiment which definitely established the disease in game, and showed that it could be communicated from game to cattle. On August 22nd a young koodoo was shot on Devuli Ranch with fresh lesions of foot-and-mouth disease on both tongue and all four feet. Virus was taken from the koodoo, and three susceptible cattle were inoculated with it on August 26th. These three cattle reacted to the inoculation as follows: At 3 p.m. on August 28th a temperature of 104 was recorded with tongue lesions, but no vesicles visible on feet. At 6 p.m. on August 29th, vesicles were present on the feet of two of the cattle, and from these virus was obtained, and on August 30th vesicles were present on the feet of the third animal.

Although this matter is now settled, it is unlikely that this is a common method of spread. As the result of practical experience it must be concluded that it is extremely rare for the disease to be disseminated in this way, otherwise the whole of southern Africa would have been infected years ago. In most of the areas where foot-and-mouth disease has occurred wild game has been abundant and however efficient the police cordon may be it can have little or no control over the big game which constantly cross and recross the cordons, without, as far as could be ascertained, spreading infection.

During the year a new policy of fencing in the prohibited areas was carried out and some 250 miles of such fencing was erected. This allowed freer movement of animals and animal and vegetable products outside the fence.

Of the five fresh outbreaks of African coast fever that occurred during the year the one at Chipinga occurred in the area where the disease had broken out five years previously. There have now been a number of such cases in South Africa and it is to be assumed that the disease has never really been cleared up, and that, in the meantime, it probably existed on certain farms in the vicinity unknown to the veterinary department.

With a view to obtaining a survey of the extent in which theileriasis was present in the country, spleen smears from all animals slaughtered at the export and municipal abattoirs at Bulawayo were examined. Over 30,000 smears were examined and the presence of Koch's bodies was detected in three instances. The areas of origin of these cattle were kept under close observation, but with no further developments. We understand that Onderstepoort research officers have had a similar experience in finding on rare occasions Koch's bodies in spleen smears taken from apparently healthy animals.

Of the remaining scheduled diseases it seems remarkable that only two cases of anthrax are recorded when it is remembered that the disease is so prevalent in the territories adjacent to Rhodesia's southern and western borders. Tuberculosis is rare and only three cases are reported. Heartwater, however, shows a heavy mortality in some areas and it is stated that it can be successfully controlled by five-day interval dipping if paraffin and soft soap are added to the dipping fluid. The good results reported in other States following the inoculation by the neurotropic mouse brain vaccine of horses against horse sickness are confirmed in S. Rhodesia.

As was to be expected, the export of animals and animal products from S. Rhodesia suffered as the result of the prolonged drought and because during February and March and for a part of January export to Johannesburg was stopped owing to foot-and-mouth disease near Palapye. Despite this, over four thousand animals were sent on the hoof to Johannesburg and a thousand to N. Rhodesia, while over 62,000 were killed by the cold storage companies for export overseas as chilled or frozen beef and these figures are highly satisfactory.

Taken as a whole, the report is highly creditable to what those with personal experience know to be an efficient department. It shows considerable progress carried out over a difficult period.

NATIONAL VETERINARY MEDICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND

Quarterly Meeting of Council

The autumn meeting of Council, N.V.M.A., was held at the Connaught Rooms, Great Queen Street, Kingsway, W.C.2, on the afternoon of Tuesday, October 4th, 1938.

The President (Major Brennan DeVine) presided over a large attendance of members of Council, the following being present: Messrs. S. G. Abbott, L. S. Balls, J. R. Barker, P. D. Baylis, H. E. Bywater (Hon. Treasurer), D. Campbell, T. A. R. Chipperfield, H. W. Dawes, J. B. Dier and T. A. Dobie, Major J. J. Dunlop, Messrs. H. Scott Dunn, A. A. Forsyth, J. Fox, Hedley C. D. Golledge and L. St. Bel Golledge, Lt.-Col. H. Greenfield, Mr. H. W. Griffiths, Major R. C. G. Hancock, Dr. Tom Hare, Mr. J. R. Hewer, Sir Frederick Hobday, Major H. Kirk, Dr. J. McCunn, Messrs. J. W. McIntosh, W. R. McKinna and G. P. Male, Dr. R. F. Montgomerie, Major R. H. H. Over, Professor W. M. Mitchell, Messrs. W. Nairn, R. Barons Nelder, J. Small, R. H. Smythe and Arnold Spicer, Dr. A. W. Stableforth, Messrs. H. W. Steele Bodger, Alex. Thomson (Beckenham), A. H. Watson, T. Wilkinson, T. Wilson, Dr. W. R. Wooldridge (Hon. Secretary) and Mr. T. L. Wright, together with Mr. C. O. Langley (Solicitor) and Mr. F. Knight (Secretary).

DALRYMPLE-CHAMPNEYS CUP AND MEDAL

The President informed the Council that the customary lines of procedure were being altered, as there was a presentation to be made to Dr. Minett, who had to leave almost immediately—that item on the agenda would therefore be taken before the minutes.

The presentation was in connection with the Dalrymple-Champneys Cup and Medal which were presented by Sir Weldon Dalrymple-Champneys for scientific and clinical work of outstanding merit by a member of the veterinary profession in the British Isles or Dominions, and it was left to a Committee of the Council to decide who should receive it this year. He was very pleased that this year that Committee had selected Dr. Minett to receive the honour. (Applause.) Dr. Minett, as they knew, was one of the foremost bacteriologists in the British Isles and he had a world-wide reputation. He had done quite a lot of research work in connection with the occurrence of the diphtheria bacillus in horses, into Johne's disease and streptococcus diseases, while particularly interesting were his wonderful researches in connection with mastitis in cows, and what had always attracted his (the President's) particular attention was Dr. Minett's interest in the public health aspect of the milk industry.

It was a very great pleasure for him to have, as almost his first duty as their President, the presentation to Dr. Minett of the Dalrymple-Champneys Cup. With that presentation, each year, there went a medal to be retained by the holder. He asked Dr. Minett to accept that cup at his hands and the medal which went with it. (Loud applause.)

Dr. Minett said the Council would not expect him to attempt anything approaching a lengthy speech in acknowledging that presentation. Unfortunately, he was unable to go to Glasgow to receive the prize and, for that, he must express his regrets. The President had been very kind in referring to the research work he had carried out both in the field of veterinary science and in related public health matters. For those comments and also for the presentation he was very grateful.

He would like to add, however, that, to him, there was something more in this than a personal presentation. He had been in Camden Town now for some eleven years, and he felt that this presentation ought to be looked upon in part as a compliment to those colleagues, men and women, who had been working with him during that time. Therefore, in spite of the rules and regulations governing its award, he would always wish to think of the Dalrymple-Champneys Prize of 1938 as being a compliment not only to himself but also to those colleagues who had been working with him at the Research Institute of the Royal Veterinary College. (Applause.)

Minutes.—The minutes of meetings of meetings of Council, N.V.M.A., held at Glasgow on September 6th and September 9th respectively, were taken as read and signed as correct.

Arising out of the minutes, the Secretary read the following letters:—

(1) From Captain W. G. Wragg, dated September 29th, 1938, and addressed to the Secretary in the following terms:—

"I have to thank you for your letter of the 12th instant expressing the appreciation of the Council of the National Veterinary Medical Association of my services as Honorary Treasurer.

"I have very highly appreciated the honour of serving as an Officer of the Association and although I have reverted to the ranks, my interest in, and support of the Association will never flag."

(2) From Captain J. R. Rider, dated September 29th, 1938, and also addressed to the Secretary:—

"I thank you for your letter conveying the resolution of the Council passed at Glasgow.

"I am indeed grateful to the members for their appreciation of any small service I may have given, and I should be glad if you would convey my thanks to the Council at its next meeting.

"For the present I have no choice but to remain an outside observer, though I need not add that I shall always be pleased to assist in promoting the welfare of the Association when it lies in my power to do so."

Both letters were greeted by the Council with applause.

(3) From officials of the Corporations of the Harrogate and Southsea Councils respectively, returning thanks for the information that the next conference of the Association would be held at Great Yarmouth and intimating that their invitations in regard to later meetings of the Association held good for future years.

The Secretary announced that there was no further correspondence before the meeting. He then reported the receipt of apologies for inability to attend the meeting from the following members of Council: Messrs. P. F. Dolan, A. Gofton, S. F. J. Hodgman, W. W. Lang, Professor W. C. Miller, Capt. S. J. Motton, Major D. S. Rabagliati and Capt. J. R. Rider.

MEMBERSHIP OF THE ASSOCIATION

The Secretary reported that the number of members on the register of the Association subsequent to the second meeting of Council at Glasgow was 2,093.

Obituary.—The obituary list was read by the Secretary as follows, the members standing the while: Captain Sidney Villar (Amersham), Captain C. Taylor (Medomsley), Captain R. W. Glaister (Barrow-in-Furness), Mr. R. A. Philp (Harold Wood), Mr. John Beattie (Longside), Mr. D. S. Jack (King's Lynn) and Mr. D. Mossinson (Palestine).

New Members.—The following, having filled in forms of nomination and paid their subscriptions, were elected into membership of the Association on the proposition of Captain Campbell, seconded by Mr. Spicer: Mr. J. A. Brown (Conon Bridge), Mr. T. E. Christie (Belfast), Mr. F. M. B. Duncan (Milnathort), Mr. J. H. A. Jarvis (Oswestry), Miss Joan O. Joshua (London), Mr. L. Koompirochana (London), Mr. J. J. Low (Brechin), Mr. J. J. McLaren (Kinlochewe), Mr. W. B. Martin (Lisburn), Mr. L. T. Morris (Carmarthen), Miss J. A. Oliphant (Glasgow), Mr. F. Russell (Lisburn), Mr. T. Scott (Dublin), Mr. R. G. Smith (Kilmarnock), Mr. J. Gordon Souter (Aberdeen), Mr. R. O. Walpole (Wolverhampton) and Mr. J. L. Webb (Natal).

The Secretary stated that, deducting the loss of seven members by death and with the addition of 17 members by election, the number of members now stood at 2,103, which constituted a further record in membership.

Reports of Standing Committees

Organising Committee.

The Secretary read the following report of this Committee, the Chairman (Captain J. R. Rider) being absent:—

A meeting of the Organising Committee was held at 36, Gordon Square, W.C.1, on Monday, October 3rd, 1938.

In the absence of Captain J. R. Rider, the Chair was occupied by the President.

The minutes of the previous meeting were read and approved.

The Committee received for examination the revised draft recommendations for the more uniform arrangement of Free Treatment Schemes in conjunction with the R.S.P.C.A., as agreed at the Edinburgh meeting of the Committee in July following consideration of the observations received from Divisions. It was agreed that a sub-committee consisting of Mr. H. W. Griffiths, Professor W. M. Mitchell and the Hon. Secretary should now discuss these recommendations with the Chief Secretary of the R.S.P.C.A. before they were submitted to the Divisions for final approval. It was further decided that the Scottish Society for the Prevention of Cruelty to Animals, and other Societies in Scotland with which veterinary surgeons are co-operating in the provision of free treatment facilities should also be consulted.

After consideration of correspondence with the R.S.P.C.A., Divisions of the N.V.M.A. and certain practitioners the Committee decided to delay taking action thereon until the various negotiations in connection with the Memorandum on Free Treatment had been completed.

A report was submitted on the proceedings of a Conference of Animal Welfare Societies held in London on July 1st, at which the Association had been represented by Mr. H. W. Griffiths.

It was noted that the Conference had set up two committees: one to explore the possibilities of establishing a Clearing House for the receipt and circulation of information that would forward the work of protecting animals, and the other (on which the N.V.M.A. would be represented) to consider how co-operation could best be achieved in the provision of adequate facilities for the euthanasia of small animals in all districts.

A vote of thanks was passed to Mr. Griffiths for representing the Association at that Conference.

The Committee directed that a copy should be obtained of the British Medical Association's scheme for assisting practitioners in maintaining their practices during a stage of national emergency, with a view to exploring the possibility of its adaptation to the needs of veterinary practitioners.

It was also agreed that consideration should be given to the question of the services that could be rendered by the profession in a national emergency, so that advice would be available if the need arose.

Furthermore, it was the feeling of the Committee that the protection of animals in time of war called for consideration if the Association was to be placed in the position of similarly being able to proffer advice to its members.

Mr. Steele-Bodger moved the reception and adoption of the report, the motion being seconded by Mr. Nelder.

Discussion on the report having been invited,

A Member asked if, arising out of the last portion of the report, there had not been set up by the Council a special committee to consider the question of the protection of animals against gas warfare.

The President stated that there was a Committee, set up by the Home Office, considering the protection of animals against gas. The Association was represented on this Committee by Mr. Brayley Reynolds.

The Hon. Secretary said that there was also a special sub-committee which was advisory to the *Veterinary Record*, its purpose being to collect material on the subject and make it available to the readers of the Association's journal. As members of Council would probably have noticed, material had been published from time to time. That Committee was still in being.

The Hon. Treasurer stated that the Departmental Committee appointed by the Home Office and referred to by the President had been in existence for over twelve months, but he thought that only one meeting had been held. At that meeting the information available was put before the members and certain lines of research work were indicated—work that was being carried on in conjunction with the R.A.V.C. at the Chemical Research Station. That Committee was still in being, and he supposed it would meet again.

Sir Frederick Hobday said he supposed that they all knew that the People's Dispensary for Sick Animals had a gas-proof box, made in different sizes, for dogs. That organisation was preparing to distribute 37,000 of these boxes, and it was being inundated with applications for them. The cost of the box was comparatively small.

Major Kirk asked if, in view of what Mr. Bywater had said, the Association could reinforce the Committee which had been set up.

Colonel Greenfield said that he desired to stress the fact that gas did not play the only part in warfare and perhaps not even the most important part. During the Great War many of them had to prepare for the protection of great numbers of animals against shell fire and they did so very effectively. He thought there were many men with experience of warfare who could give very valuable information on the protection of animals not only against the effects of gas but against high explosives.

Mr. Bywater thought it should be stressed that the Committee, the activities of which he had been reporting, was not a Committee of the "National": it was a Committee set up by the Home Office. Colonel Greenfield's observations were very important: injuries to animals from incendiary bombs and high explosives were, in his opinion, a much greater menace than gas.

Major Kirk said that he would like to suggest that the Council set up a Committee to investigate the subject of the protection of animals against gas forthwith. The motion was seconded by Mr. McKinna.

The President observed that for the information of the Council he might say that there had been an Anti-Gas Committee formed by that Council, consisting of Dr. Lander, Captain Brayley Reynolds, Professor Boddie and himself. They interviewed an official of the Home Office and it was as a result of this interview that veterinary surgeons had been invited to lectures on air raid precautions organised by the British Medical Association. The Committee had decided to delay action with regard to the protection of animals until hearing further from the A.R.P. Department of the Home Office, but, as had been stated, the Home Office had now its own Committee on this question. If the Council wished, however, they could now set up another committee to enquire into the matter on behalf of the Association.

Dr. Tom Hare stated that, arising out of what the President had just said, he would like the Council to give attention to Colonel Greenfield's statement; also he would request Major Kirk to enlarge his motion. He regarded gas as only one aspect of the many precautions to be taken in the event of a national emergency. He thought it desirable that a permanent emergency committee should be set up to consider the employment of the profession in all its branches for national service, on the same lines as the Emergency Committee set up by the British Medical Association. During the recent emergency there were many members of the profession who were anxious to serve their country and who were, at the same time, in grave doubt as to the capacity in which they might usefully do so. Civilian veterinary requirements would be far, far greater than those of a purely military nature. In his opinion, the needs of the Royal Army Veterinary Corps would probably be met by their Regular and Territorial establishment, together with their Special Reserve of Officers. Thus it might be desirable, in the country's interest, that members of the profession on Panel A and Panel B should not be called upon for other service: it might be desirable, also, that the staffs of the veterinary laboratories should be retained. Even then it was conceivable that there would remain a large number of the profession who would not know how best to serve the country either on a whole-time or part-time service. He would like Major Kirk's Committee to consider all the bearings of a national emergency upon the employment of the profession and how the various Ministries

and Departments of State could be advised as to the employment of veterinary surgeons for all contingencies likely to arise in war. Finally, he thought they might be able to give assistance in certain public health services in which they had not hitherto been called upon to serve. It was a matter for immediate and careful study by a permanent committee of the Council.

Major Kirk observed that he was very anxious that the veterinary profession should be the leaders in veterinary matters. He would therefore like to see, with Dr. Hare, the institution of a committee to do nothing else but to investigate the question of the protection of animals in time of war.

Mr. McIntosh said that it seemed to him that in the event of war, nothing could be done as far as the larger animals were concerned but to allow them to scatter themselves as widely as possible over the countryside. The protection of the smaller animals probably could be carried out reasonably well.

Mr. Steele-Bodger commented in reference to the question of the scattering of the large animals that there had to be considered the matter of the decontamination of pastures.

Mr. Male observed that in that connection there were many other lines of action that had to be thought out, for example the decontamination of the animals themselves and also of the veterinary personnel. Many people were seeking advice on this matter and there was no doubt that the public expected the profession to be in a position to give that advice.

Major Kirk and Mr. McKinna having accepted amendment of their resolution along the lines indicated in the discussion, it was now put to the meeting in the following form and passed unanimously as a remit to the Finance and General Purposes Committee:—

> "That a Special Permanent Committee of the N.V.M.A. be set up to investigate the whole question of the measures to be taken for the protection of animals in warfare."

Parliamentary Committee.

Mr. Watson (Chairman) read and moved the reception and adoption of the following report, Dr. Montgomerie seconding the motion which was carried without discussion:—

The Parliamentary Committee met at 36, Gordon Square, on Monday, October 3rd, under the Chairmanship of Mr. A. H. Watson.

The minutes of the previous meeting were read and signed as correct.

It was reported that the Food and Drugs Bill had now received the Royal Assent and that this meant that any Member of the Royal College of Veterinary Surgeons employed by a Council for the purpose of food inspection would have the standing of an "Authorised Officer" for the purpose of the examination and seizure of meat under the provisions of that Act relating to unsound food. Another effect of the Act was that no officer of a Council other than the Medical Officer of Health, a Sanitary Inspector or a Member of the Royal College of Veterinary Surgeons now had power to act in relation to the examination and seizure of meat.

The attention of the Committee was drawn to a resolution passed by the Sanitary Inspectors' Association at its recent conference in Edinburgh requesting the Ministry of Health to urge upon local authorities that the duties in connection with this measure should be carried out only by officers engaged in public health services. The Committee approved of a letter having been sent to the Sanitary Inspectors' Association asking for further information concerning this resolution.

A print was submitted of a Bill to provide for the registration and inspection of riding estabments and for other purposes connected therewith, which had been introduced during the last session of Parliament.

The Committee were pleased to note that it was intended that certain of the duties which would arise under this Bill should be carried out by members of the veterinary profession. It was felt, however, that in the event of the Bill being re-introduced, the promoters should be asked to amend the wording of one clause which provided that a local authority in authorising a veterinary surgeon to make an entry and inspection shall have regard to his experience in the treatment and management of horses and shall not authorise any veterinary surgeon to make any such entry and inspection if he appears to them to have any pecuniary or professional interest in the riding establishment to be inspected or in any other riding establishments in the same locality. The Committee took the view that, apart from the slight, unintentional or otherwise, on the profession generally implied in this clause, there were bound to be districts where the only veterinary surgeon available would be the veterinarian who normally attended professionally one or other of the local riding schools.

Finance and General Purposes Committee.

The minutes of a meeting of the Finance and General Purposes Committee held on July 22nd, having been circulated, were taken as read:—

A meeting of the Finance and General Purposes Committee was held at 36, Gordon Square, W.C.1, on Friday, July 22nd, 1938.

There were present Captain J. R. Barker, Mr. H. W. Steele-Bodger, Mr. H. E. Bywater, Mr. J. W. McIntosh, Professor W. M. Mitchell, and Dr. W. R. Wooldridge.

Apologies for non-attendance were received from the President, who was visiting the Sussex Division, and from Major DeVine, Major Kirk, Major Rabagliati, Captain Simpson, the Hon. Secretary (Captain Rider), Mr. A. H. Watson and the Hon. Treasurer (Capt. W. G. Wragg).

In the absence of the President, Mr. J. W. McIntosh occupied the chair.

The minutes of the previous meeting, having been circulated, were taken as read and approved.

Arising from the minutes:—

(*i*) The Committee agreed to the choice of the London Casino for the Reception and Dinner to the members of the American Veterinary Medical Association attending the International Veterinary Congress, to the arrangements made for these functions, and appointed Mr. Steele-Bodger

and Mr. Bywater as a sub-committee to arrange the final details.

(*ii*) Estimates for preparing the floor of the Council Room for polishing and for supplying an electric cleaner with floor polisher attachment for the use of the caretaker were submitted. After discussion, it was agreed to make other enquiries before coming to a decision.

(*iii*) The Secretary reported that he had accompanied the President to a meeting with the Chairman and the Secretary of the Live Stock Offices Association on June 2nd with regard to the subject of veterinary certificates; that suggestions for removing the objections of the Association to certain of the questions asked of veterinary surgeons in these forms had subsequently been put in writing, and that a letter had now been received stating that the President's suggestion that a standard form should be brought into use had been agreed to and a sub-committee appointed to consider the further recommendations submitted by the "National" and to draw up a form for approval by the companies concerned.

The Committee expressed satisfaction with the progress made and passed a vote of thanks to the President for his good offices in the matter.

(*iv*) After further consideration, the Committee decided to make a donation of £50 in response to the appeal received from the National Institute for Research in Dairying for the Association's support of its building fund.

(*v*) The Committee heard the reply received from a veterinary investigation officer regarding the statement appearing in a sale catalogue to the effect that most of the animals to be sold had been tested by him.

After discussion, it was decided to ask the local Division for their observations on this explanation.

Draft Accounts for 1937.—The draft of the audited accounts for the year ended December 31st, 1937, was laid before the Committee, together with a letter from the auditors making suggestions for dealing with certain items connected with the lease of 36, Gordon Square. The Committee accepted the recommendations of auditors, subject to the Hon. Treasurer, who was unable to be present, being agreeable. These recommendations were (*a*) that the surplus on the realisation of investments should be applied to the reduction of the premium on the lease of 36, Gordon Square, and that the remainder of this premium, together with a provision of £500 for dilapidations, should be written off by £82 15s. 5d. per annum over the period of the lease, (*b*) that £50 be set aside each year to meet the cost of decorations, (*c*) that a sum be reserved to cover the Association's liability for property tax.

In connection with the last item it was reported that the auditors had been successful in securing a reduction in the assessable figure from £427 10s. 0d. to £406 0s. 0d., but that if the Association decided to contest the assessment further the auditors were of opinion that the matter should be referred to surveyors with experience in dealing with local properties. The Committee agreed to accept the lower assessment obtained by the auditors.

Financial Statement for May and June.—In his absence, the Secretary read the Hon. Treasurer's Report on a Financial Statement for May and June, which showed that on June 30th there was a balance in hand of £1,383 11s. 8d., while liabilities amounting to £419 14s. 1d. had to be met. The Treasurer was authorised to pay these accounts.

Adrian Jones Statue Appeal Fund.—Having considered letters from Major G. W. Dunkin, the Committee resolved to recommend the Council to make a donation of £50 to the Adrian Jones Statue Appeal Fund.

Office Equipment.—The Committee approved the action of the President in authorising the repair and overhaul of an Underwood typewriter at a cost of £4 18s. 10d.

Colours and Markings of Horses.—It was decided to secure 1,000 further reprints of the R.C.V.S. Report on "Colours and Markings of Horses" to meet future demands for this Report from students and others. Messrs. Grubbs' estimate of £4 16s. 0d. was accepted, and it was agreed that the sale price of this reprint should continue to be 4d. a copy.

Resolutions from Divisions

From the Society of Veterinary Practitioners.—"That the Society of Veterinary Practitioners recommend to the Council of the N.V.M.A. that Divisions of the 'National' be requested to arrange demonstrations of *post-mortem* and laboratory technique within their Divisions."

It was agreed, after discussion, to report to the Council that the Committee consider it desirable that Divisions should arrange such demonstrations for the benefit of their members.

From the Mid-West Division.—"That the N.V.M.A. be asked to have analysed proprietary animal remedies for which extravagant or unreasonable claims are made by the manufacturers."

After full discussion, it was decided to inform the Council that while the Committee had every sympathy with the object of the Mid-West Division in raising this matter, it had been found on repeated consideration that no action by the N.V.M.A. was practicable.

The following matters were brought forward under "Any other business":—

Advisory Committee on Pig Diseases.—A letter was read from Mr. J. O. Powley, who had been invited by the Council to join the Association's Advisory Committee on Pig Diseases, stating that he had been advised by the Ministry that his sitting on such a committee might lead to a conflict of loyalties and that he must therefore decline the invitation with regret.

It was decided to endeavour to secure the assistance of Dr. R. Lovell.

Professor Mitchell drew the attention of the Committee to the arrangements being made by the Scottish Branch to entertain on August 3rd in the Royal (Dick) Veterinary College a small party of American veterinary surgeons and their wives under the leadership of Dr. D. M. Campbell, of Chicago, while passing through Edinburgh on their way to the International Veterinary Congress. It was decided to make a grant of £5 towards the expenses of the Scottish Branch in entertaining these American visitors.

Authority was given for the opening of a deposit account of £5 with H.M. Stationery Office, in order to enable the Association to obtain copies of Government publications by post and so save frequent journeys to the Stationery Office by members of the staff whenever such publications were required.

On the proposition of Captain Barker, it was agreed to enquire of Professor Wooldridge, as Chairman, whether the Special Committee appointed in 1935 to review the present knowledge of the various forms of the tuberculin test and assess their value had any report to make

regarding its proceedings; if not, when was the Committee likely to present a report.

The Secretary read the following report of a meeting held on Tuesday, September 27th:—

A meeting of the Finance and General Purposes Committee was held at 36, Gordon Square, W.C.1, on Tuesday, September 27th, 1938.

There were present Major Brennan DeVine (President), Mr. H. W. Steele-Bodger (President-Elect), Major Hamilton Kirk, Mr. H. E. Bywater (Hon. Treasurer), Mr. H. W. Dawes, and Dr. W. R. Wooldridge (Hon. Secretary).

Apologies for absence were received from the Immediate Past-President (Captain D. Campbell), Captain J. R. Barker, Major J. G. McGregor, Professor W. M. Mitchell, Captain R. Simpson, and Mr. A. H. Watson.

In the absence of Captain Campbell, the President occupied the Chair.

The minutes of the previous meeting, as circulated to the Committee, were taken as read and approved.

Arising from the minutes:—

(*i*) The Committee, in passing the accounts in connection with the reception at the London Casino given to American veterinarians on their way to the International Veterinary Congress, were agreed that although the cost, after the sale of tickets to members of the profession, exceeded by £43 the amount provisionally set aside, the success of this reception in establishing friendly relations with visiting colleagues, fully justified this extra expenditure.

(*ii*) A letter was read from the Hon. Secretary of the Scottish Branch returning the £5 which had been allocated to the Branch towards the cost of entertaining American veterinarians travelling through Scotland to attend the International Veterinary Congress. In so doing the Branch expressed its appreciation of the action of the Committee in so readily making this contribution, and explained that it had been returned only because the cost of the function was more than covered by the sale of tickets.

(*iii*) Consideration was given to further estimates in connection with the re-surfacing and polishing of the Council Room floor at 36, Gordon Square.

It was agreed to accept the quotation of Messrs. Maple & Co., Ltd., amounting to £9 14s. 9d., subject to the removal of any risk of this work being spoilt by the moving of furniture in the room, while in connection with a previous minute that enquiries be made with the object of providing the housekeeper with an electric polisher, it was left to the Hon. Treasurer and the Secretary to endeavour to secure a reconditioned model, if possible.

(*iv*) The Committee were pleased to learn that information had been received that the Live Stock Offices Association had agreed to certain modifications suggested by the N.V.M.A. in the wording of reports by veterinary surgeons on animals proposed for insurance, which would have the effect of lessening to some extent the amount of work or responsibility involved in furnishing these reports to tariff insurance offices.

It was decided that the various non-tariff offices should now be approached with a view to the adoption by them also of this revised standard form of report.

(*v*) After consideration of the views of the Hon. Secretary of the Parliamentary Science Committee, it was resolved to write direct to the "British Veterinary Association, Ltd." requesting them to change their name because of the confusion caused by its similarity with that of the N.V.M.A., and intimating that if this request were not acceded to, the N.V.M.A. would have to consider taking other steps to effect the desired alteration.

(*vi*) A letter was read from Dr. R. Lovell accepting the invitation extended to him to serve on the Association's Advisory Committee on Pig Diseases.

(*vii*) The Committee received a communication from Professor G. H. Wooldridge, together with a suggested report from the Special Committee on Tuberculin Tests, of which he acted as Chairman in 1935.

In view of the additional information concerning the various tests which had become available since that Committee had its last meeting, it was, however, decided to recommend that a new Committee be appointed to reconsider the subject in the light of present-day conditions.

(*viii*) A quotation received from Messrs. W. T. Lawrence & Son confirmed the sufficiency of the setting aside of £50 p.a. in the Accounts of the Association for external and internal repairs and decorations at 36, Gordon Square.

A suggestion that the question of repainting the outside of the premises should be brought up next spring was agreed to.

Correspondence.—Following the receipt of communications from Mr. H. C. P. King and correspondence with the Ministry of Transport, it was understood that there was no foundation for the statement which had appeared in a national newspaper that modifications of the Road Traffic Acts were about to be introduced that would exempt medical men from the provisions of those Acts relating to obstruction, etc. It was learned, however, that the Association's request that any such exemptions should be extended to veterinary surgeons had been noted by the Ministry.

The Committee decided to write to the British Medical Association enquiring whether that Association had made any representations in the matter.

Staff Salaries.—The Committee again considered the following Resolution received from the Editorial Committee in February: "That the Editorial Committee recommends that the Finance and General Purposes Committee consider favourably the application of the Editorial Representative and it suggests that his salary should be increased annually by £20 to a maximum of £600."

After discussion it was agreed that the question of the salaries paid to members of the staff be considered at the next meeting of the Committee, and that in the meantime the Editorial Committee be asked to furnish reasons in support of the foregoing Resolution.

Financial Statement for July and August, and Hon. Treasurer's Report.—The Hon. Treasurer presented his Report on a financial statement covering the months of July and August which showed balances of £458 7s. 1d. in the General Account and £1,000 on deposit.

The Hon. Treasurer's report was approved and authority given for the payment of liabilities amounting to £708 12s. 9d.

Standing Committees, 1938-39

At the request of the Council, the Committee considered the composition of the Standing Committees for the year 1938-39.

It was felt that the Rule adopted in April last that no member should serve on more than two

committees should not apply to the Editorial Committee, and anticipating the Council's agreement, the Committee decided to recommend that the Standing Committees be constituted as follows:—

(The President, Hon. Treasurer, and Hon. Secretary are members *ex-officio* of all committees.)

APPOINTMENTS COMMITTEE

Abbott, S. G.
Balls, L. S.
Boddie, G. F.
Chipperfield, T. A. R.
Claxton, B. A.
Craig, J. F.
Dalling, T.
Duff, H. M. M.
Griffiths, H. W.
Hobday, F. T. G.
Ironside, W. J.
Miller, W. C.
Minett, F. C.
Montgomerie, R. F.
Over, R. H. H.
Small, J.
Smythe, R. H.
Stewart, W. Lyle
Vine, S. B.
Whitehouse, A. W.

FINANCE AND GENERAL PURPOSES COMMITTEE

Barker, J. R.
Brennan, A. D. J.
Campbell, D.
Dawes, H. W.
Dalling, T.
Dolan, P. F.
Gunning, O. V.
Hancock, R. C. G.
Kirk, H.
Nairn, W.
McIntosh, J. W.
Male, G. P.
Mitchell, W. M.
Simpson, P. J.
Stableforth, A. W.
Steele-Bodger, H. W.
Sumner, H.
Spicer, A.
Watson, A. H.
Wragg, W. G.

together with the Chairmen of the other Standing Committees.

VETERINARY OFFICERS' AND PUBLIC HEALTH COMMITTEE

Abbott, S. G.
Barker, J. R.
Baylis, P. D.
Boddie, G. F.
Brennan, A. D. J.
Crosfield, P.
Dunn, H. S.
Dunlop, J. J.
Fox, J.
Forsyth, A. A.
Golledge, L. St. Bel
Gunning, O. V.
Hirtes, R. E.
Hughes, H. Tudor
Lang, W. W.
Motton, S. J.
Perry, C. E.
Rabagliati, D. S.
Ritchie, J. N.
Wilkinson, T.

ORGANISING COMMITTEE

Auchterlonie, L.
Chambers, F.
Dawes, H. W.
Dunlop, J. J.
Dunn, H. S.
Griffiths, H. W.
Hewer, J. R.
Mitchell, W. M.
Nelder, R. B.
Over, R. H. H.
Perry, C. E.
Spicer, A.
Stableforth, A. W.
Standley, H. P. (Jr.)
Sumner, H.
Stewart, W. Lyle
Thomson, A. (Glasgow).
Wright, T. L.
Wilkinson, T.
Wilson, T.

PARLIAMENTARY COMMITTEE

Beckett, E. F.
Blount, W. P.
Buxton, J. B.
Campbell, D.
Chambers, F.
Crosfield, P.
Dolan, P. F.
Fox, J.
Gillard, F. C.
Hare, T.
McCunn, J.
McKinna, W. R.
Marrison, E.
Rabagliati, D. S.
Rees, W. D.
Robertson, Alex. (Edinburgh).
Sangster, G.
Small, J.
Standley, H. P. (Jr.)
Watson, A. H.

EDITORIAL COMMITTEE

Barron, N. S.
Chipperfield, T. A. R.
Edwards, J. T.
Galloway, I. A.
Hancock, R. C. G.
Hodgman, S. F. J.
Kirk, H.
McCunn, J.
Miller, W. C.
Pool, W. A.
Stableforth, A. W.
Steele-Bodger, H. W.
Woodrow, C. E.

together with two others to be nominated by the Editorial Committee itself.

Venue of the Annual General Meeting.—Also at the request of the Council, consideration was given to the manner of selecting the venues for the Association's Annual Meetings. It was the feeling of the Committee that the place of meeting should be chosen for two years ahead and that it should be the responsibility of the Finance and General Purposes Committee to undertake preliminary local and other enquiries and advise the Council in making recommendations to the members in general meeting.

RESOLUTIONS FROM DIVISIONS

Consideration was given to a resolution, as follows, received from the *Dumfries and Galloway Division.*—"That the members of this Division view with concern the amount of testing with tuberculin done by other than qualified veterinary surgeons. They fear, although it is difficult to obtain proof, that the use of tuberculin will be abused even to the extent of tuberculin testing being carried out by private individuals in supervised and attested herds before official tests are due, thus giving an untrue indication of the true state of the herds at such official tests."

It was agreed to refer this resolution to the Association's Advisory Committee on Biological Products.

Proposed Poultry Research Station.—After consultation with the Chairman of the Association's Advisory Committee on Poultry Diseases, who attended the meeting, it was decided to send a letter to the Agricultural Research Council stressing the importance of a sufficient number of veterinary surgeons being appointed to posts at the Research Station which the Poultry Technical Committee recommend should be established, and intimating that the Association would be pleased to send representatives to discuss this request with the appropriate Committee of the Agricultural Research Council, should it so desire.

OTHER BUSINESS

(*i*) At the suggestion of Major Kirk, the Committee agreed to address a letter to the Secretary of State for War, and to send a copy to the Director-General, Army Veterinary Service, enquiring what services veterinary surgeons, including those in the Royal Army Veterinary

Corps Reserve of Officers, would be expected to perform in a state of national emergency, having regard to the extensive mechanisation of the Army.

(*ii*) It was resolved that should the threatened national emergency occur, the meetings of the Association called for the 3rd and 4th October should be postponed indefinitely, and that the Officers of the Association should conduct the affairs of the Association in the interim.

(*iii*) At the request of Lloyds Bank, 296, High Holborn, the Committee confirmed the authority given some years ago for Mr. Frederick Knight, as General Secretary of the Association, to be one of the signatories to cheques drawn on the General Account of the Association.

Major Kirk moved that these reports be received and adopted, Mr. Chipperfield seconding the motion.

Captain Barker said that, arising out of the second report, there arose an important matter, namely, the recommendation that a new Committee be appointed to consider the subject of the tuberculin tests in the light of present-day conditions. His Committee (the Veterinary Officers' and Public Health Committee), in discussing a related matter, went into that question, and if the Council thought it was in order he would propose names for that Committee as suggested by the Veterinary Officers' and Public Health Committee that morning. He proposed that the following be members of the new Committee: Professor Dalling, Dr. Montgomerie, Mr. Glover, Mr. Doyle, Captain Fox, Major Gillmor, Mr. T. R. Thomas, Mr. Steele-Bodger and himself, together with the officers of the Association.

Mr. Male seconded the proposition, which was carried.

On the motion of Mr. Chipperfield, seconded by the Hon. Secretary, it was unanimously resolved: "That the Standing Committees of the Association as recommended by the Finance and General Purposes Committee be appointed *en bloc*."

Major Kirk, speaking with reference to the letter that was sent to the War Office, said that he thought that there might be a doubt in some people's minds as to the necessity or reason for sending that letter. He would like to remind them, however, that by reason of the extensive mechanisation of the Army there would be very little need for veterinary officers at all and that Committee wondered in what capacity officers in the R.A.V.C. Reserve could serve. He had it on the authority of the Director-General, R.A.V.C., that immediately hostilities occurred all the horses in the country would be requisitioned and the services of all available veterinary officers (as such) would be required.

Dr. Tom Hare said that he was very concerned about the organisation of the profession in the event of a national emergency. He wanted to see the N.V.M.A. prepared, on the declaration of a state of emergency, to give instructions to all registered members of the profession as to the best way in which their services could be employed for the country. Rather than enter upon details at the moment, he preferred to leave the question for the serious consideration of his colleagues on the Committee. If the British Medical Association could do it for the members of the medical profession, he failed to understand why the N.V.M.A. could not do it for members of the veterinary profession. The British Medical Association had appointed a permanent committee about twelve months ago and were registering every medical practitioner in the country as to the form of service he would be willing to undertake. They took the initiative and became the advisers to His Majesty's Government instead of the Ministry of Health or any other State Department taking the initiative. He pictured the essential action as our profession organising itself and advising the Cabinet—not waiting to have an emergency upon it and then the Ministry or Ministries giving orders as to what the profession should do. In other words, he hoped that they would at once set their own house in order and frame a scheme which would include means for protecting the practices of absentee practitioners. It could be impressed upon the authorities that the profession had its plans for the protection of animals. The plans would enable the President to publish statements in the Press as to what the profession advised owners of animals to do in the various contingencies of war.

The President: "The Finance and General Purposes Committee are instructed to take that question up; also the formation of a Special Committee."

The reports of the Finance and General Purposes Committee were adopted without further discussion.

Veterinary Officers' and Public Health Committee.

The following report of this Committee was read by Captain Barker (Chairman), who moved its reception and adoption, Captain Campbell seconding the motion, which was carried without discussion:—

A meeting of the Veterinary Officers' and Public Health Committee was held at 36, Gordon Square, on Tuesday morning, October 4th, and was presided over by Captain J. R. Barker.

The Secretary read the minutes of the previous meeting and they were signed as correct.

Further consideration was given to the report of the Association's representatives who interviewed the Ministry of Agriculture on the subject of the wording of tuberculin test certificates and the sale of tested cattle. At the same time a letter was brought to the notice of the Commtitee which had appeared in an agricultural journal

expressing views similar to those put forward on behalf of the Association at that interview.

After discussion, it was decided that in view of recent experience the Committee should support the General Purposes Committee's recommendation that a committee be appointed to investigate the technique, procedure and interpretations of the various tuberculin tests. It was felt that that committee should also consider the formulation of a suitable tuberculin test certificate or certificates and should have power to extend the scope of its enquiry.

The Committee also again considered whether any useful action could be taken to put a stop to the frequent encroachment by detention officers on the work intended to be done by veterinary surgeons in connection with the enforcement of Paragraph 3, Part IV of the First Schedule to the Public Health (Meat) Regulations (Scotland), 1932.

It was decided to refer the correspondence in this matter to the Scottish Branch and in so doing to call its attention to a resolution passed by the Sanitary Inspectors Association at their Edinburgh Congress, requesting the Minister of Health to urge upon local authorities that the duties in connection with the Food and Drugs Act should be carried out only by officers engaged in public health services.

Appointments Committee.

The report of this Committee was read as follows by the Secretary:—

The Appointments Committee met at the offices of the Association on Tuesday morning, October 4th, when the Chair was occupied by the President.

The minutes of the previous meeting were read and approved.

Correspondence was received from the Editorial Committee which had passed between the Editorial Representative and Dr. Whitehouse concerning the inability of the *Veterinary Record* to continue publishing advertisements of certain appointments at the Glasgow Veterinary College.

Dr. Whitehouse and the Chairman of the Editorial Committee spoke to this matter, and the Committee expressed its appreciation of the frank and generous way in which they made their observations. It was decided that a letter of explanation and apology be addressed to the Secretary of the Glasgow Veterinary College, apologising for the Association's action in withholding the advertisements without affording the College authorities the opportunity to amend them.

Also at the request of the Editorial Committee, consideration was given to the salary and conditions of service of the post of Director of the Imperial Veterinary Research Institute at Muktesar, advertised in a recent issue of the *Veterinary Record*, which, it had been subsequently learned, were not regarded as satisfactory by some members of the Association.

In this connection letters were read from several members of the profession whose views had been obtained for the information of the committee.

After discussion, it was decided to insert a notice in the *Veterinary Record* to the effect that if intending applicants desiring further information will make a personal call at 36, Gordon Square, the Association will be pleased to assist them in this direction as far as possible.

The report was received and adopted without discussion, on the motion of the President, seconded by Captain Barker.

Editorial Committee.

Dr. Wooldridge (Chairman) read the report of this Committee as follows, moving its reception and adoption:—

In accordance with the intimation given at the last quarterly meeting of Council, the Jubilee Issue of the *Veterinary Record* was published on July 16th. The Committee are gratified to know that this special issue, and particularly the historical review which was its principal feature, evoked widespread appreciation both in this country and abroad.

The issue of the *Veterinary Record* of October 1st contained an editorial announcing the publication of the Report of the Committee on Veterinary Education, together with the summary of the Committee's conclusions and recommendations. It has been agreed that this Report, so important to the profession, calls for a series of leading articles and, in this connection, the following minute was passed at a meeting held on August 2nd: "That the Editorial Committee has already taken action with a view to the preparation of an independent review of this Report which shall be carefully considered before publication so as to be entirely in support of the aims and objects of the N.V.M.A.

The Committee has thought it well to point out, in the editorial columns, that, in connection with the material published in the correspondence section, it encourages the expression of diverse views, being desirous of giving members of the profession as much freedom as possible in the columns of their journal, but that at the same time it accepts no responsibility for the opinions of its correspondents.

In view of the recognised disability imposed upon a large number of potential correspondents in the Government Service, both at home and abroad, by the present practice of refusing to publish anonymous contributions to the correspondence column, the Committee is re-considering the advisability of reversing this ruling, provided that the letters in question are not of a personal or libellous character and that they are accompanied by the authors' cards.

The Committee has carried out the duty committed to it by the Council of referring to expert scrutiny the papers selected by the Provisional Committee for presentation to the Annual Congress; it feels, however, that this duty, together with the advisory one associated with the drawing up of the programme of papers for consideration by the Provisional Committee are duties of the Editorial Committee which should be reconsidered by the Council.

It has been decided that, before contributions from students can be accepted for publication, they should not only have been subjected to the customary scrutiny by referees, but should have been forwarded by the student with a recommendation from his professor or extra-mural teacher.

Publication, in the form of news, has been made of reports, received from the Committee's own correspondents, of the proceedings of the XIIIth International Veterinary Congress. The papers presented to this Congress are now in the hands of the Abstracts Sub-Committee.

During the quarter certain advertisements for veterinary services were refused publication in the *Veterinary Record* as they were deemed unsuitable from the professional point of view. Other advertisements of a similar character which unfortunately received publication while the Committee was scattered on holiday received editorial comment immediately upon realisation of the occurrence of these unusual slips in publication procedure. Steps have been taken to avoid such mistakes in the future.

Dr. Stableforth, who seconded the motion, said that he thought it would be a gracious act if that Council endorsed the tribute paid to Dr. Edwards for the immense amount of labour expended by him in the compilation of the Jubilee Review.

Mr. Steele-Bodger commented that he thought this suggestion was one which would commend itself heartily to the Council. He moved accordingly, "That the best thanks of the Council be accorded to Dr. J. T. Edwards for the immense amount of effort in research and other ways he expended in the preparation of the excellent historical review contributed by him to the Jubilee Number of the *Veterinary Record*."

Major Kirk seconded the motion, which was carried with acclamation.

Major Kirk said that he was sure that the Editorial Committee would be glad of the guidance of the Council in connection with its reconsideration of the question of the advisability of reversing its existing ruling that anonymous contributions to the correspondence column be not accepted for publication.

Captain Dawes said that he could not help feeling that the opening of the columns of the Association's journal to anonymous correspondents would be perhaps a retrograde step. He regarded an anonymous communication as a very reprehensible one. He was old enough to remember the days when the columns of the *Veterinary Record* bristled with personalities and statements amounting, not definitely to libel, but to petty abuse, and he was perfectly certain that if the present practice of excluding anonymous contributions to the correspondence columns were discontinued, the effect on the opinion of those outside the profession would be very unfortunate.

Major Kirk commented that, while largely in sympathy with what Captain Dawes had said, there was another point of view. He was present at a meeting of the Committee when this matter was discussed and he thought that the general feeling was in sympathy with the suggestion that the rule should be reversed.

He (Major Kirk) for one, thought there were many matters concerning the individual or collective interests of the veterinary profession which members might wish to communicate to the *Record*. Many such matters could not be described as coming under a strictly scientific classification, yet they were nevertheless often of general interest. It was quite obvious that many of their members, at home or abroad, who might wish to utter warnings to their colleagues upon conditions of service, etc., to ventilate grievances, or offer suggestions, would in many circumstances be precluded from so doing if their identity was to be publicly disclosed. He thought the Editorial Committee could be relied upon to consider such communications on their merits and publish only those which could give no offence.

Dr. Wooldridge said that the editorial committee thought the matter should be reconsidered because certain veterinary surgeons engaged in whole-time work had expressed the view that they could not publish under their own names comments on their work that might be of advantage to the profession. One particular matter which many members wished to discuss anonymously was the difficulties they had encountered in connection with the tuberculin test: they felt that their official position rendered open discussion of these difficulties undesirable. The Editorial Committee, he could assure them, had not decided in favour of that procedure: nor if they so decided would they allow anonymous publication of any communication at all personal in character; the text of these letters would have to be strictly scientific. The names of the authors would be known to the Editorial Committee. No doubt it would help the Committee if it knew whether the Council did not approve even of a relaxation to that extent. The Committee had not made up its mind on this matter and would be only too pleased to receive the Council's direction.

Mr. Steele-Bodger moved: "That it be left to the Editorial Committee to accept anonymous contributions for publication, provided that each is accompanied by the card of the writer of the letter."

Major Kirk seconded the motion.

A direct negative having been moved by Captain Dawes and duly seconded, the President put the motion to the meeting, when it was declared carried by 20 votes to 15.

The motion for the reception and adoption of the report was next put and carried.

Special Consultative Committee

The report of this Committee had been circulated to members prior to the meeting and it was agreed that it be taken as read.

The Consultative Committee has met once since the July Meeting of the Council, but a further meeting has been arranged for October 5th.

At its last meeting the Committee received a letter from the Ministry with regard to two cases of "hardship" which they had undertaken to

look into. It was felt by the Committee that no further action could usefully be taken in one of these cases, but that renewed representations should be made in the other.

A letter was also received from the Ministry dealing with an assertion that practitioners in a certain county had lost a great deal of work since the change over took place. The Committee noted with gratification the remarks of the Ministry in this letter as to the allocation of work to part-time inspectors in the county in question.

It was decided to request the Ministry to issue instructions to Superintending and Divisional Officers that longer notice should be given when requesting practitioners to carry out the inspection of "Accredited" herds. The Ministry have agreed to comply with this request.

A letter was received from the Ministry in response to an enquiry addressed to them by the Committee, stating that where, as a result of the routine clinical inspection of a herd under the Milk and Dairies Acts and Orders an animal subject to the Tuberculosis Order is found, an additional fee of 10s. 6d. (plus mileage) for valuation and *post-mortem* under the Tuberculosis Section of the Scale would be payable.

Further "hardship" cases, received through the Society of Veterinary Practitioners, were considered and, subject to the usual enquiries being satisfactory, it was agreed to recommend the seven practitioners concerned for appointment to Panel "A."

In regard to the case of one member, however, it was the feeling of the Committee that at the present juncture success would not attend an application to the Ministry for redistribution of Panel "A" areas in his county in order to remove this member's complaint of inequality of income as compared with neighbouring practitioners who also held a Panel "A" appointment.

The Committee received from Professor Dalling, Chairman of the Association's Advisory Committee on Poultry Diseases, a summary of the points concerning the future control of poultry disease which the Advisory Committee, following upon consultation with members of the profession engaged in this work, recommended should be raised with the Ministry. It was agreed that Professor Dalling should accompany the members of the Committee to the meeting which had been arranged with the Ministry that day and that he should speak to this matter on the Association's behalf.

The Committee has considered several other matters. None of these, however, appears to call for special mention at the moment.

Captain Campbell proposed that the report be received and adopted, Captain Barker seconding the motion.

Mr. Male said that he would like to ask, with regard to the new additional fee for valuation and *post-mortem* of an animal found to be subject to the Tuberculosis Order as the result of the routine clinical inspection of the herd under the Milk and Dairies Acts and Orders, when that would come into force. It was not generally known, he thought, in some districts, and it was not generally in force in his own.

Mr. Steele-Bodger replied that the additional fee came into force on April 1st last. Divisional Inspectors were circularised and a copy was sent to all inspectors on Panel A.

Captain Campbell observed that Mr. Male could take it that it was in force; if it was not being applied in Mr. Male's district communication should be made to the Divisional Inspector.

The report was approved without further discussion.

PAPERS FOR CONGRESS, N.V.M.A.

The next business before the Council was to reconsider the following resolution of the Editorial Committee:—

> "That a Special Committee be appointed to decide upon subjects and authors of papers to be read at the Annual Congress."

The Hon. Secretary (speaking to this matter) said that perhaps Council would remember that about a year ago it asked the Editorial Committee to suggest to the local committee what papers should be read at the Annual Congress. The experiment had been tried in connection with the last Congress, and it was the opinion of the Editorial Committee that under the present procedure it would not work satisfactorily. The Committee spent considerable time in drawing up a list of papers and subsequently in advising the Provisional Committee upon other papers the latter committee had drawn up independently, and the final conclusion was that a large amount of time was being needlessly wasted in duplication, and that in order to avoid this it would be better to form a joint committee, representative of the two individual bodies, so that they could decide more expeditiously which papers were required. What the Editorial Committee had in mind, therefore, was that a Special Committee should be appointed, consisting of six members, three appointed by the Editorial Committee and three by the Provisional Committee, and that this Special Committee should have the duty of deciding what papers were to be read, who should be asked to prepare them etc., and generally deciding any other point associated with the written scientific contributions to be made to the Annual Congress. He moved accordingly.

The motion was seconded by Mr. Spicer.

Captain Campbell commented that, while he had no objection to that procedure, he would point out that it would involve an alteration in the articles of association, wherein it was stated that the Provisional Committee were charged with the duty of selecting papers, etc.

Dr. Wooldridge asked if it would not be possible for the Provisional Committee to delegate that section of its work to a Special Committee.

Major KIRK enquired if the Provisional Committee could not co-opt members of the Editorial Committee for the time being.

Mr. MCINTOSH asked if the arrangement now suggested by Dr. Wooldridge was not in practice some years ago.

The SECRETARY, replying to that question, said that the arrangement some years ago was that the Editorial Committee were asked to consider these matters and make suggestions for the consideration of the Provisional Committee: the final decision rested with the Provisional Committee.

The SOLICITOR, at the request of the PRESIDENT, now read the relevant article of association, and added: "I think you might appoint a Special Committee in an advisory capacity."

The HON. SECRETARY said that he thought the Provisional Committee had two very distinct functions: the first was to supply the requisite local knowledge to make the Congress a success in the chosen locality, which function they would all admit was exceedingly important; and, secondly, to choose papers which would be a credit to the profession in conference at its annual gathering. For the second function—which, he submitted, was entirely different from the first—it seemed to him that there was required a different type of personnel. Sometimes a locality was sufficiently rich in men of both types to enable the Provincial Committee to carry out both functions exceedingly well. Generally, however, they could not expect busy practitioners to appreciate equally the recent developments in veterinary knowledge as those members of the profession who had had to review papers coming into the *Veterinary Record* for the past year or years. It was with the object of ensuring the services of at least some of these more specialised people solely for the purpose of helping in the choice of papers and not to participate in any of the other arrangements necessary for the Congress, that they thought a joint advisory committee would be useful.

He would accept the modification suggested by the Solicitor provided that it was understood that the Council would under normal circumstances expect the Provisional Committee to accept the advice of its Special Committee.

Captain CAMPBELL supported Dr. Wooldridge's views, saying that there had been a good deal of duplication of labour in the past, but that a Joint Committee to make recommendations which the Provisional Committee would look upon as its duty to accept would be a very wise and, he hoped, acceptable solution.

Dr. HARE said that he thought it was in the interests of the profession that the Council should encourage local ideals and local ideas, and should refrain from interference with the Provisional Committee, to which the President and other officers of the Association were always available for consultation. He did not like any suggestion of pressure on the local committee: let them be the choosers. He contended that the local practitioners were just as capable as people in London of judging what were the most fitting papers to be read at their Congress.

Dr. STABLEFORTH pointed out that not infrequently the officers of the Association were not able to be present at all meetings of the Provisional Committee and Editorial Committee where these decisions were taken, so that the method put forward by Dr. Hare sometimes failed. He felt that the difficulty would be best surmounted by the proposed Joint Committee.

Mr. STEELE-BODGER observed that as one of the large body of people who had no time to read for themselves, he felt that if they left the tasks in question to that super-committee they might select papers for them that they would not understand. (Laughter.) He agreed with Dr. Hare: he maintained that the local committee was equally entitled to represent the Association as was the Editorial Committee and that the proposal now before the Council might be interpreted as casting a reflection on the local committee. The Provisional Committee for next year, when it was appointed, would have the President and the Hon. Secretary, while Professor Dalling would undoubtedly be on that Committee. He thought the matter in question should be left to the decision of the Provisional Committee: the invitation to read a paper came from them—in a sense the Congress was "their show," put up on behalf of the Association. If the officers of the Association thought that the papers submitted were not of the quality they might be, then was the time for them to go back to the Provisional Committee.

The HON. TREASURER said that he would suggest a Special Committee, consisting of three members of the Provisional Committee resident in the area where the Congress was to be held, three members nominated by the Editorial Committee, plus the officers of the Association, be appointed to deal with these papers, etc.

The HON. SECRETARY said that the Editorial Committee and himself fully realised that no Congress could succeed without local initiative, local spirit and the local leadership of the Provisional Committee, but it had been thought for at least eight years that a little extra advice in choosing the papers would not be to the disadvantage to the Congress. During the time that the work of suggesting subjects for discussion at the Congress was left to a small committee which met in London, Colonel P. J. Simpson was President. The Editorial Committee now suggested that just for this particular function the formation of a small committee, representative of the local spirit, the central officers and

the Committee responsible for the Association's scientific journal, would save an enormous amount of time for all those who had been concerned with this duty in the past. It must be emphasised that no friction between the local committees and the Editorial Committee had arisen in the past and this proposal was made largely in the interest of saving time for busy men. That was the spirit in which this proposal was put forward. It was certain that neither he nor the Editorial Committee would do anything to lessen that local initiative which had proved itself so well at recent congresses. He would accept the amendment proposed by Mr. Bywater which was, principally, that the officers of the Association be added.

The motion, proposed by Dr. WOOLDRIDGE and seconded by Dr. MONTGOMERIE, was now carried unanimously in the following form:—

> "That a Special Committee be appointed to advise the Provisional Committee upon the choice of subjects and authors of papers to be read at the Annual Congress, the Committee to be formed of three members of the Provisional Committee (to be resident in the district), and three members of the Editorial Committee, together with the officers of the Association."

NOTICE OF MOTION

The HON. SECRETARY (Dr. W. R. Wooldridge) gave notice that at the next meeting of Council he would move:—

> "That no Division of the N.V.M.A. shall have more than ten representatives on the Council of the Association."

There being no other business, the PRESIDENT, who was cordially thanked for his conduct of the proceedings, declared the meeting closed.

CENTENARY OF ROTHAMSTED

The Rothamsted Experimental Station at Harpenden, Hertfordshire, the oldest agricultural research station in the world, will reach its centenary in 1943. To mark the occasion it has been decided to carry out a scheme of extension, and recently an appeal was launched for a fund of £125,000. The Duke of Kent, who presided at a meeting representative of agricultural interests at which the appeal was launched, announced that the King, through the Duchy of Cornwall, had opened the subscription list with a gift of £100.

It is proposed that the £125,000 should be allocated as follows:—Chemical laboratory new wing, £15,000; alterations to old chemical laboratory, £3,000; equipment, £3,000; pot culture houses and accessories, £5,000; farm buildings and cottages, £4,000; forecourt, £3,000; new agricultural library, with cubicles for workers, £20,000; new building for the Imperial Bureau of Soil Science and other workers associated with oversea activities, conference hall, etc., £30,000; and addition to endowment to provide upkeep of buildings, fellowships, and salary augmentations, £42,000.

N.V.M.A. DIVISIONAL REPORT

South-Eastern V.M.A.*

SUMMER MEETING AT BECKENHAM

The Summer Meeting of the above Division was held on June 30th, 1938, when a visit was paid to the Wellcome Physiological Research Laboratories, Langley Court, Beckenham, Kent, by kind permission of the Director, Dr. R. A. O'Brien. For the occasion, Fellows of the Central Veterinary Society were invited to be present.

The following signed the attendance book: Mr. F. Crowhurst (President, S.E.V.M.A.), Professor McCunn (President, C.V.S.), Messrs. Cattell, Gallie, Clark, Greenfield, Blount, Gooch, Hogben, Perryman, Fail, Bywater, Macdonald, Berwyn Jones, Marks, MacIntyre, Perrin, Dier, Bruford, Hodgman, Pugh, Peyton, Crowhurst (F. A.), Dr. R. F. Montgomerie, Miss Sanderson, Mrs. E. I. Thomson and Alex. Thomson (Hon. Secretary).

Apologies for absence were received from Messrs. E. P. Barrett, F. W. Willett, F. B. O. Taylor and Arnold Spicer.

The proceedings opened with an address by Dr. R. F. MONTGOMERIE, Veterinary Superintendent of the Laboratories, who welcomed the visitors on behalf of the Director, Dr. R. A. O'Brien, and briefly outlined the work of the Laboratories.

The party then proceeded to a tour of the various departments where the normal work in progress was witnessed.

The company were entertained to tea by Director and staff of the Laboratories. An informal discussion followed and the many points raised in connection with what had been seen during the tour were dealt with by Dr. O'Brien and Dr. Montgomerie.

On behalf of the visitors, Professor MCCUNN thanked the Director and Veterinary staff for the trouble they had taken to provide such an interesting and instructive afternoon, saying, amid applause, that he felt sure it had been appreciated by all.

Dr. O'BRIEN replied in suitable terms, and the meeting then terminated.

ALEX. THOMSON, *Hon. Secretary.*

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*Received for publication October 17th, 1938.

At a recent meeting of the Carmarthenshire Agricultural Committee it was revealed that routine clinical inspections of animals, under the Milk and Dairies Acts and Orders, had detected only one case of tuberculosis during examination of 700 herds, involving 11,842 cattle.

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

Nov. 7th.—Meeting of the Editorial Committee, N.V.M.A., at 36, Gordon Square, W.C.1, 4 p.m.

Nov. 10th.—Meeting of the South-Eastern Division, N.V.M.A., at Tunbridge Wells, 3 p.m.

Dec. 8th.—V.V.B.F. (Ladies' Guild) Dance, Princes' Galleries, Piccadilly, W.1.

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PERSONAL

Mr. Thomas Grahame Appointed Professor of Anatomy at Edinburgh

Mr. Thomas Grahame, B.Sc. (Edin.), F.R.C.V.S., who has been appointed Professor of Anatomy in the Royal (Dick) Veterinary College, Edinburgh, and Barclay and Goodsir Lecturer in Comparative (Veterinary) Anatomy in Edinburgh University, has been on the staff of the Dick College for the last 19 years as Assistant Professor of Anatomy.

Professor Grahame is a native of Carlisle, where he was born in 1883. He was educated at Chatsworth House and Grosvenor College, Carlisle, and took his veterinary course at the old Dick College in Clyde Street, Edinburgh, qualifying as M.R.C.V.S. in 1917, and taking his Fellowship in 1923.

He had been a member of Edinburgh University O.T.C. from 1912 till 1917, and after qualifying he served in the Great War with the Welsh Division as a veterinary officer, and towards the end of the war with the 52nd (Lowland) Division.

On returning to civil life in 1919 Professor Grahame was appointed assistant to the late Principal Bradley, who was Professor of Anatomy as well as Principal of the Dick College. Professor Grahame was also Lecturer on Histology.

Professor Grahame, after demobilisation, continued his interest in the Territorial Army, and is senior veterinary officer to the Lowland Division, with the rank of Lieutenant-Colonel, and holds the Territorial Decoration.

The new professor has also taken a keen interest in sport. He was captain at both his schools in Rugby and Association football and cricket; he played Rugby as a forward for Carlisle and Edinburgh Institution; he has done invaluable work for junior Rugby in Edinburgh and the east of Scotland, and he is president of the Union of Edinburgh and District Clubs.

Professor Grahame is also well known in the golfing world. Back-marker for many years at Aberdour Golf Club, he is a former president of the Fife Golfing Union and is a member of the executive of the Scottish Golf Union and the Midlands Union.

. . . . .

Illness of Major Gooch.—All our readers will share the deep regret and concern with which we learn that Major Frederick Leeds Gooch, J.P., T.D., F.R.C.V.S., of Stamford, Lincs, who appeared in such good health when, at the Glasgow Congress, he was elected an Honorary Member of the N.V.M.A. for his distinguished record of service to the Association, recently had to undergo an operation in a London hospital. This was performed on Thursday of last week and, as we are delighted to hear from our Hon. Member himself, proved quite successful; indeed, Major Gooch has so far recovered that his specialist has given him permission to return home to recuperate.

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THE LATE MAJOR G. C. HOOPER SHARPE, M.C., M.R.C.V.S.

[Contributed]

It is difficult for those of us who saw Major G. C. Hooper Sharpe in such robust health when he was here on leave last year to realise that he has so soon passed away, as briefly announced in your issue of September 17th.

His death occurred at Salisbury, Southern Rhodesia, on August 26th, from heart failure, following an attack of pneumonia from which he appeared to be making a satisfactory recovery.

He graduated from the London College in July, 1906, and the following year proceeded to the Southern Rhodesian veterinary service where he remained to the end of his life. He was first stationed in Bulawayo, then in Fort Victoria and latterly, on the retirement of Mr. J. M. Sinclair, he was transferred to Salisbury as the Colony's Chief Veterinary Surgeon and chief veterinary officer of the British South Africa police.

He had a good war record and served in the East African campaign, being awarded the Military Cross.

Major Hooper Sharpe was a keen member of both the Matabeland and Mashonaland Turf Club, and we well remember his delight not long ago at Bulawayo one afternoon when he won three of the six races on the card. A great lover of horses and a particularly good horseman, he was never happier than when showing a colleague over his stables and discussing the merits of his string, and incidentally the appropriate treatment which some of them usually required.

"Hooper," as he was affectionately known to his friends, may have appeared to be rather abrupt in manner, but underneath was as kindly a nature as ever existed. Immense energy and a high degree of efficiency were the qualities for which he was esteemed not only in Rhodesia but throughout South Africa.

The Rhodesian farmer can be difficult when irksome restrictions for such diseases as African Coast fever and foot-and-mouth disease are imposed, but Hooper Sharpe carried out his duties without fear or favour and was so efficient that the Administration experienced no difficulty in imposing the requisite regulations.

The Funeral

The burial was carried out with full military honours. After the service at the Anglican Cathedral, the coffin was placed on a gun carriage drawn by four black mules. Headed by an escort and firing party provided by the B.S.A. Police amongst whom the deceased was so popular, the cortege included a coal-black horse with reversed riding boots in the stirrups. Following the service at the graveside, three volleys were fired and trumpeters of the B.S.A. Police sounded the Last Post and the Reveille.

Mr. C. P. Forder represented the Governor and among other mourners at the graveside were the

Minister of Agriculture (Captain the Hon. F. G. Harris), and the Officer commanding the Southern Rhodesia Forces (Colonel J. S. Morris), and representatives of the civil servants, veterinary department and the leading citizens of Salisbury, which made one of the largest attendances at funerals seen there, and indicated in what high esteem our colleague was regarded.

The Colony can ill afford to lose the services of such a capable officer while we as a profession have lost one of its outstanding personalities.

To the wife and family in their sorrow the members of the profession will extend their sincere sympathy.

W. H. C.

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IN PARLIAMENT: THE POULTRY BILL

When the House of Commons reassembled on Tuesday to conclude the present Session, Mr. Ramsbotham, Minister of Pensions, informed Mr. Gallacher that the Government hoped to produce the Poultry Bill during the next Session.

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VETERINARY RESEARCH CLUB

At the Annual General Meeting of the Veterinary Research Club the following officers were elected for the session 1938–39:—

President.—Dr. J. T. Edwards.

Vice-Presidents.—Mr. E. L. Taylor and Professor W. C. Miller.

Hon. Secretary and Treasurer.—Dr. W. R. Wooldridge.

Council.—Dr. A. D. McEwen and Mr. F. W. Priestley, with the officers (*ex-officio*).

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LEGAL NOTES

Alleged Neglect of Ewe.—Dorset Quarter Sessions Appeal Committee on October 17th heard an appeal by Joseph Thomas Miller Guppy, a 71-year-old farmer, against his conviction by the Weymouth magistrates when it was alleged that during August he neglected a ewe with the result that she died from maggots. At Weymouth Guppy was bound over for three years "not to own, keep or tend cattle, sheep or pigs during that period"; the Appeal Committee replaced this with a fine of £25—the maximum penalty allowed under the Statute. It was stated that Guppy had eight previous convictions for similar offences, and the chairman warned him that if he again appeared before a court he ran a serious risk of being sent to prison.

For the defence Guppy contended that the sheep was not his, and that although he had checked his flock, there was none missing.

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Cattle Dealer Prosecuted.—A Cheshire farmer and cattle dealer was recently fined £50 for moving certain imported Irish cattle from the premises to which they were licensed, contrary to the provisions of Article 30 of the Animals (Landing from Ireland, Channel Islands and Isle of Man) Order of 1933, and for removing from the same cattle, while still subject to the provisions of the Importation of Animals Act, 1922 (Section 2), the numbered tags placed in their ears at the port of landing in this country.

The cattle were licensed by a Veterinary Inspector of the Ministry of Agriculture and Fisheries from the landing place at Heysham to certain specified premises, and, for identification purposes, each animal bore in its left ear a numbered tag. When an Inspector of the Ministry visited the premises to which the animals were licensed for the purpose of checking the ear tag numbers, it was found that a number of the cattle bearing ear tags did not correspond with the description of the animals upon which the relative tags had been placed at Heysham.

The object of the regulations made under the Act of 1922 is to prevent the spread of foot-and-mouth disease and a serious view is taken of offences against the Order. The importance attached to a strict compliance with the provisions of the Order is emphasised by the heavy fine imposed in this case; and, in the interests of the whole livestock industry, it is essential that the regulations should be strictly observed.

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FOURTH INTERNATIONAL CONGRESS OF COMPARATIVE PATHOLOGY

Rome: May, 1939

The Congress of Comparative Pathology which is to be held in Rome from May 15th to 20th, 1939, promises to be of very special interest. Professor Rondoni, Member of the Royal Academy of Italy and Director of the Cancer Institute at the University of Milan, will be the President, and already about 20 reporters have been chosen for the following subjects:

(*a*) Ultravirus diseases.

(*b*) Heredity in pathology.

(*c*) The association of antigens, and their function.

(*d*) Regressive processes in plants.

The British reporters include Professor F. A. E. Crew on "Heredity in Pathology," and Professor J. R. Marrack on "Antigens."

The Congress Committee will be glad to receive shorter communications on any of the above-named subjects, not later than March 31st, 1939.

The Secretary of the Congress is Professor Zavagli at the address: Consiglio Nazionale delle Ricerche, Piazzale delle Science, Rome, to whom such communications should be sent.

The membership subscription is 250 lire, or in English money £2 12s. 6d. This subscription gives the right to reduced rates granted by the railways, shipping companies and hotels; to participate in all excursions and ceremonies, including the banquet, and to receive the general reports of the Congress. The ladies' subscription is 100 lire, or £1 1s. 0d.

Subscriptions may be sent to the Secretary of the British National Committee, Dr. Bullock, at 9, Red Lion Square, London, W.C.1, who will undertake to pass them on to the Secretary in Rome.

The last date for the reception of subscriptions by the Rome Secretariat is March 31st, 1939.

THE PROBLEM OF SOIL EROSION*

Australia's Experience

The Australian Government, on October 13th, issued the report of the expert committee appointed in August, 1936, to examine the problem of soil erosion primarily as it affects that continent. Of so valuable a nature are the comment and advice contained in this report that, in the words of the Adelaide correspondent of *The Times*, in a notice published in the issue of October 28th: "It is described by Parliamentary and land authorities here as the most important document of its kind prepared since Australia was settled. The committee toured the pastoral country in the north-east of South Australia, and in the upper north, and also the mallee farming districts bordering on the River Murray."

The message proceeds: "Pastoral country in the semi-arid portions of Australia, the report shows, has been reduced substantially in recent years through the destruction of the natural vegetative cover, and increasing erosion and drift of the soil. All States whose pastoral lands impinge on the arid interior have suffered in this respect, but in South Australia the loss is most serious in the north-eastern and northern areas. Considerable stretches have also been affected in the mallee wheat districts, due chiefly to indiscriminate clearing during the progress of settlement, and the cultivation of light, sandy soils. In all instances, the committee found that erosion was due fundamentally to the same cause —the removal of the vegetative cover, and consequent exposure of the bare soil to the erosive action of the wind. Overgrazing by stock has been the major factor, accentuated by dry seasons and the depredations of rabbits.

"Owing to the erratic and uncertain rainfall it is difficult, the committee say, to maintain in semi-arid pastoral country the natural cover provided by the edible saltbush, bluebush, perennial grasses and shrubs and trees, and to utilise for grazing the annual increment. Unfortunately the soil has been more or less denuded of perennial vegetation, and has become the sport of winds. The Pastoral Board has furnished a statement giving particulars of 15 pastoral properties, covering 7,381 square miles, which at one time produced much stock successfully, but now have no permanent carrying capacity. On another group of pastoral holdings, comprising more than 20,000 square miles, the carrying capacity has been depreciated greatly. After a long run of favourable seasons, accompanied by good wool prices, pastoral properties changed hands at high figures. Holdings were stocked to full capacity, and then an unprecedentedly long drought was experienced. Pastoralists, however, retained large numbers of livestock in expectation of the return of good seasons, and there was a complete annihilation of most of the herbage, and even some of the trees. A continuance of droughty conditions for fully 14 years proved disastrous.

"Swarms of rabbits became a plague, increasing the rate of deterioration of pastoral country to such an extent that the severe drought of the 14 years before 1936 has brought some of the pastoral lands very close to collapse. Then there is the danger of overstocking. The committee remark:

> The sooner steps are taken to prevent deliberate and unreasonable overstocking, the sooner a feeling of hope can be entertained that pastoral lands will remain in permanent occupation. Because of the wanton carelessness of some pastoralists, control of some kind is required, and restriction in the number of stock to be carried seems to be necessary. Unfortunately there are no clauses in the perpetual leases, nor in most of the current leases, restricting the number of livestock to be carried, and until the expiration of these leases no alterations in the conditions can be made without mutual agreement or by amendment of the Acts.

Stock Restriction

"A practice has developed in South Australia, however, whereby all new pastoral leases contain a condition that the holders may not overstock the land, and if, in the opinion of the Pastoral Board, there is any abuse of this by mismanagement, the leases may be cancelled. The position has become so serious that, according to the committee, it appears necessary to make it compulsory for restrictive stocking conditions to be inserted in all leases. The report urges that concessions in rental should be granted if lessees give a *quid pro quo* in respect of stocking. To discourage the cutting of growing trees the proposal is made that posts for fencing, either wooden or iron, should be made available at a minimum cost, and that special rates in rail transport should be allowed.

"The committee believe that plants will return to much of the devegetated country in the pastoral areas (except where there are high, moving sandhills), provided grazing animals are excluded from them altogether. In most cases recovery is regarded as certain. The Government already have adopted the policy of lowering rents to pastoral lessees who are willing to reduce the number of stock on the areas controlled by them, or to those who leave certain portions unstocked for a stated period. The effect of these preventive measures has shown that the regeneration of pastures can be attained in what is known as sheep-grazing zones. The committee see no alternative but to stock the country in such a manner that grazing balances the expected annual growth. If these semi-arid areas are gradually becoming drier and drier, as some people suppose, it is hopeless to expect worthwhile results from any action, other than the destruction of rabbits, by revegetating the land, and it is hoped that the virus experiments on Wardang Island, in South Australia, will offer a satisfactory solution.

"A number of pastoralists have enclosed small areas with sheep-proof fences and retained them as flora reserves. These are not only valuable as distributing centres for seeds, but have a distinct educational lesson in showing the normal condition of the country when stock are kept off it. The committee urge that these reserves should be encouraged throughout the pastoral areas, and suggest that the Government might subsidise the purchase of fencing materials.

"Some of the far northern towns are gradually being submerged by sand, and in course of time will have to be abandoned unless the drift can be checked. Many station homesteads and

*The attention of our readers is directed to a letter appearing in the Correspondence column of this issue, in which a Member of the profession deals with this problem in the light of his experience in the Tropics.

watering-places are also threatened. The committee recommend that flora reserves should be retained around the towns, and placed under the control of an organisation which would be responsible to the Department of Agriculture.

"The report is regarded by Parliamentary and pastoral authorities as so important that the Government are being urged to place it before the next Conference of the Premiers."

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THE FUTURE OF MEDICINE

Sir Edward Mellanby, Secretary of the Medical Research Council, in delivering the Harveian Oration at the Royal College of Physicians recently, foretold a bright future for medical discovery. At no time in the world's history, he said, had the position been more favourable than to-day for appreciating Harvey's greatness as an investigator or for acknowledging the extraordinary position he held as a leader of medical science.

In the course of his address Sir Edward Mellanby said that one of the main objects of his discourse was to show how the State control of medical research could be brought about and be compatible with freedom to the investigator. Another object was to explain the manner in which State funds were used for the purpose of promoting discovery in medicine.

There had been some public criticism both in the Press and in Parliament recently about the small amount of financial support provided by the State for medical research. It had been said that it was a curious anomaly that only £195,000 a year was provided by the Government for research on disease which cost the country from £200,000,000 to £300,000,000 a year, since it was mainly by research that the Government could hope to reduce the vast amount of sickness and the expenditure it involved. Whereas it was undoubted that much more financial provision was required for medical research, there was no reasonable doubt that in the course of time this money would be forthcoming. The Medical Research Council's finances had been slowly and steadily built up, and on the whole had provided the means for progressive development. The most limiting factor in all research activity, but especially in medical research, was personnel, and the number of people who were trained for and capable of doing work of this type was not large. By various means the council were endeavouring to increase their number and with that increase in trained investigators more money would be required to keep pace with the work. Some system must also be sought for financing sudden calls for organised research made by other Government Departments.

Speaking of the work of the National Institute for Medical Research, established by the council, Sir Edward Mellanby said that it had always reached the highest standard. One aspect of it of particular interest to the practising doctor was the biological standardisation of drugs. Here it could be claimed without cavil that the National Institute had led the world, and both nationally and internationally had rendered a great practical service to mankind. Another line of policy adopted by the council—the placing of units of research in different institutions—had shown great developments in recent years, and its progress was limited only by finances and personnel. The council had every intention of promoting further developments along these lines as they considered it was one of the most effective methods of aiding research.

After describing other aspects of the council's policy, Sir Edward Mellanby said that short of a catastrophic change which might upset or even destroy national life, the future of medical discovery was bright. There was no doubt that more and more knowledge, giving control, both preventive and curative, of disease would be obtained. The limiting factor in this progress would always be the men of genius available who made the first-class discoveries; but it was probable that with the spread of educational opportunities to poorer people more of these men would present themselves. The money available for research would increase and financial obstacles would almost certainly be removed as the work developed now that the State had put its hand to the plough. No insurmountable difficulty might be expected in the direction of finance if the situation was handled wisely.

The difficulty he did foresee was not that of obtaining knowledge but of its application to human needs. Curative remedies as they appeared would, as in the past, undoubtedly be generally taken up by the medical profession. Much of the new knowledge to be gained, however, might concern the prevention of disease and especially the prevention of chronic and degenerative diseases. The adoption and application of this knowledge would depend generally on the degree of education and wisdom of individuals. In some cases it would involve Government action. Without an enlightened public opinion the average individual would do nothing to save himself or herself and the State even less.

If we were to continue as a successful democracy, dependent on public opinion for action, this must be guided suitably and quickly in problems of health and in other matters. It seemed to him that one of the most important functions of the Royal College of Physicians in the future would be to lead public opinion and to guide State departments, especially in matters of preventive medicine.

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VITAMIN C IN MILK

"Cows' milk is far from being an abundant source of ascorbic acid (vitamin C); nevertheless it is desirable to retain as much as possible of this labile substance," observes the *British Medical Journal* in a recent annotation, which continues: "The work of Kon and his colleagues at Reading has shown that in the cow's udder ascorbic acid is present in the reduced condition, but that as the result of subsequent exposure of the milk to light it is oxidised and later rendered biologically inactive. Exposure of a bottle of milk to sunlight on the doorstep of a house for half an hour may lower its ascorbic acid content by 50 per cent. Heating, as in pasteurization, accelerates the inactivation of the oxidised form, but has apparently no effect on the reduced form. In other words, milk that is protected from light can be pasteurized without destruction of the ascorbic acid. Since both ascorbic acid and oxygen are colorless it is a little difficult to understand why the short waves of visible light, which are known to be active in the photochemical oxidation of ascorbic acid, are absorbed by these substances. Recent observations by Hand, Guthrie, and Sharp* in the United States of America suggest

**Science*, 1938, 87, 439.

that lactoflavin (vitamin B_2), which absorbs blue light, plays a considerable part in this reaction. If lactoflavin is removed from the milk by adsorption ascorbic acid is no longer oxidised by exposure to light. Prolonged exposure of milk to sunlight destroys both lactoflavin and ascorbic acid. If fresh ascorbic acid is now added no further destruction occurs in the presence of light, but if lactoflavin is added as well ascorbic acid is rapidly oxidised. In mares' milk, which contains little or no lactoflavin, ascorbic acid is relatively more stable than in cows' milk. It thus appears that for the photochemical oxidation of ascorbic acid both dissolved oxygen and lactoflavin are required. If the vitamin C content of milk is to be preserved it is obviously important to protect the milk from light as far as possible. This is not always easy, particularly when the milk has to be distributed on the rounds in bottles. The American workers show that very satisfactory results can be obtained by freeing the milk from dissolved oxygen. The milk is subjected to an evacuation process in which the oxygen is swept out by the water vapour. The method can be applied before or after pasteurization. Provided the milk is cooled and bottled in such a way as to prevent access of oxygen it can withstand exposure to light without suffering any decrease in its content of ascorbic acid. Pasteurized milk treated in this way was found to contain 20 mg. of ascorbic acid per litre after being kept at 1° to 3° C. for seven days, while untreated raw milk had its initial content of 20 mg. per litre reduced in this time to 2 mg. The evacuation process is also of value in removing off-flavours due to oxidation changes in the fat. Whether this method will prove suitable for adoption on a commercial scale is not discussed, but from an academic point of view the results are of undoubted interest."

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HOME-PRODUCED FEEDING STUFFS: THE CONSERVATION OF GRASS

Dr. Norman C. Wright, of the Hannah Dairy Research Institute, in the course of a communication made to the Highland and Agricultural Society of Scotland (reprinted in the Society's *Transactions* [Vol. 50, 1938]) on the subject of "The importance of home-produced foodstuffs, with special reference to the conservation of grass," observes: "The predominant occupation of British agriculture is the production of live stock. According to recent statistics, live stock and live stock products account for roughly two-thirds of the total estimated value of the agricultural output of England and Wales. The figures for Scotland are even higher, such products constituting over four-fifths of the country's agricultural output. Again, it has been estimated that more than 85 per cent. of the total agricultural area of Great Britain is used for grazing or for the production of crops which are utilised for stock feeding. It is therefore surprising to find that few serious attempts have been made to assess the total quantities of feeding-stuffs available for the nutrition of the live stock population, or to determine the proportions in which the various classes of feeding-stuffs contribute towards this total. Much discussion has, it is true, been devoted to the general problem of the country's food supplies, but this has been chiefly concerned with the quantity of food directly available for human consumption, rather than with the amount of feeding-stuffs available for conversion into live stock products.

"This neglect is, perhaps, the more remarkable in view of the conclusive evidence which is now available that the primary nutritional requirement of our population is for an increased consumption of so-called 'protective' foods and of foods rich in 'first-class' protein, among which the most important are milk, eggs, and meat. With the gradual rise in the standard of living during the past fifty years the *per capita* consumption of these products has, in fact, already shown a remarkable increase. Since 1881 the consumption of meat per head has increased by 45 per cent., while butter consumption has been doubled.[1] Again, a comparison of the *per capita* consumption of eggs in 1909-13 with that in 1934 shows a 50 per cent. increase, while the consumption of cheese has increased by 36 per cent.[2] As regards eggs, the increase in the *per capita* consumption has been largely met by an expansion in home production, and home-produced eggs now constitute nearly 70 per cent. of the total available supplies. But the country still has to rely largely on imports for adequate supplies of meat and dairy products. Imported meat provides about 60 per cent. of the available supplies, while roughly 90 per cent. of butter and 70 per cent. of cheese are imported from overseas. Moreover, although the whole of our present supply of liquid milk is home produced, there are already indications that excessive dependence on imported feeding-stuffs may have a serious effect in limiting milk production—a fact which is particularly unfortunate in view of the special efforts which are being made to increase the *per capita* consumption of milk.

"With the adoption of a more constructive food policy it is, indeed, probable that the *per capita* consumption of all live stock products will tend to increase markedly during the next decade. It is obviously desirable, therefore, that the country should not only be in a position to provide a larger proportion of existing supplies of such products, but that any expansion in demand should, so far as possible, be met by increased home production. Both these objectives will, however, require an equivalent expansion in the supplies of feeding-stuffs. In view of this fact it appears opportune to take stock of our present resources of home-produced feeding-stuffs and to determine, if it appears necessary, how best these can be increased."

Summarising the observations he then proceeds to make, Dr. Wright says: "An attempt has been made to estimate the origin and quantities of feeding-stuffs at present available for the nutrition of the country's live stock. It appears that some 60 per cent. of the available nutrients are derived from grass and grassland products, while the inclusion of arable crops and of certain miscellaneous by-products, such as brewers' grains, meat meal, and fish meal, brings the proportion of home-produced feeding-stuffs up to roughly 75 per cent. of the total available supplies. The outstanding fact revealed in these figures is the predominant importance of grass as the main source of food for British live stock. If, therefore, any attempt is to be made to achieve a greater degree of self-sufficiency in regard to supplies of feeding-stuffs, it is natural to turn

1 "Food, Health, and Income." Sir J. B. Orr. Published by M'Millan & Co., London (1936).

2 "Report of the Advisory Committee on Nutrition," Ministry of Health. Published by H.M. Stationery Office (1937).

first to grassland production. It is well recognised that much of the existing permanent grassland (as well as of rough grazings) is capable of very great improvement; carefully controlled experiments have shown that the yield of dry matter per acre may be increased by 30 to 60 per cent. by suitable manurial treatment, though for quick rejuvenation of old worn-out pastures the use of the plough may be necessary. The productivity of grassland may also be increased by the use of the right combination of grasses in re-seeding and by adopting a system of controlled grazing.

"While improvement in the productivity of permanent grassland would add enormously to the quantity of home-produced nutrients available for stock feeding, the potential value of such improvement will only be fully realised if suitable methods are made available for conserving a large proportion of the herbage for winter feeding. In order to obtain a product of high nutritive value it is necessary for the herbage to be cut at an early date (leafy) stage of growth, since at this stage the dry matter of the grass resembles in composition a relatively protein-rich concentrate. Hay-making is useless for this purpose, and this fact has led to the development of alternative methods of conservation, notably artificial drying and ensiling. The relative merits of these two methods are discussed in the text, and it is concluded that, while artificial drying is still in an experimental stage, ensiling could advantageously be adopted on a wide scale.

"Reference is made to the reduction which has taken place in the acreage of arable land during the past sixty years, and to the influence of this on the supplies of home-grown feeding-stuffs. The turnover from arable to grassland has been accompanied by a corresponding increase in the importation of cheap cereals and protein-rich concentrates. At the present time imported cereals (chiefly maize) supply over twice the nutrients of home-produced cereals, while the imports of concentrates are also large. A return of at least part of our grassland to arable cultivation would be necessary if a determined effort were to be made to increase the proportion of home-produced feeding-stuffs. In particular, the acreage under oats would require to be substantially increased, an effort would need to be made to encourage the cultivation of beans, and the falling off in the acreage under roots might be off-set by an increase in the production of other winter forage crops such as cabbage and kale. It does not appear that any large-scale development in the cultivation of soya beans can be anticipated.

"Finally, brief reference is made to the existing supplies of home-produced protein-rich by-products, and arguments are put forward for attempting to increase the output of animal by-products, and particularly of blood meal and fish meal.

"In conclusion, it should be made clear that in the present article methods of increasing the supplies of home-grown feeding-stuffs have been considered without detailed reference to the economic factors involved. The object of the article has been to point out the potential ability of British agriculture to meet the increasing demand for feeding-stuffs. It is obvious, however, that economic considerations must also be taken into account. The development of the country's full potentialities in this direction will depend not only on world prices of imported feeding-stuffs, but on the measure of support which the agriculturist receives from the State. Such considerations raise problems which are outwith the scope of the present article."

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ARTIFICIAL OESTROGENS

"The injection of the follicular hormone has long been known not only to hinder the normal progress of the fertilised ovum to the uterus but to suppress endometrial proliferation and prevent implantation of the egg," states the *Lancet* (September 17th), and continues: "If injected still later it may cause death of the embryo. Early this year Dodds, Golberg, Lawson, and Robinson reported[1] the synthesis of a substance having in many respects an action similar to that of oestradiol (or oestrone) but possibly even more potent, and the biological effects of this diethylstilboestrol were described in our columns[2] by Dodds, Lawson, and Noble. From Germany is reported[3] a new derivative of oestradiol, ethinyl oestradiol. Both these new preparations are effective when given by the mouth, and this has now been made additionally clear by combined work done at the National Institute for Medical Research and the Middlesex Hospital and reported by Parkes, Dodds, and Noble.[4] The two new oestrogens, diethylstilboestrol and ethinyl oestradiol, were fed to rabbits in propylene glycol solution; diethylstilboestrol was administered to rats in oily solution by stomach tube under brief ether anaesthesia.

"The experiments were arranged in three groups. It was first shown in immature female rabbits sensitised with oestrone that the subsequent administration by mouth of either of the oestrogens greatly decreased, or in larger doses abolished, the endometrial proliferation caused by the subcutaneous injection of progesterone in oil. The next stage was to prove by laparotomy, at different periods after mating, the high normal rates of ovulation and implantation in rabbits. The normal figures having been ascertained, seven rabbits were given ethinyl oestradiol during the first week after mating; they were killed and examined six to nine days after coitus when progestational changes should have been well advanced. Those (four) treated for five or six days with a total dosage of 2 to 6 mg. showed no normal implantations and little or no progestational proliferation, though the corpora lutea in the ovary seemed normal. For those (two) which had a smaller dosage over a shorter period, implantation had not been entirely eliminated but the appearance suggested partial failure. One rabbit given intermediate dosage showed intermediate changes. In another series of nine rabbits diethylstilboestrol was effective, though in less degree. This drug was tried also in rats, with suitable controls, and proved to be highly potent in preventing implantation. In a third group of experiments designed to test interruption of established pregnancy, ethinyl oestradiol was given to six rabbits in varying dosage over a short period (two to three days) which began nine days after mating, the rabbits being killed a few days later. All the 30 embryos in the five rabbits receiving a total dose of 0·5 mg. or more of the drug were resorbed or were undergoing resorption. In the remaining animals, which received 0·2 mg., two live

[1] *Nature*, 1938, **141**, 247.
[2] *Lancet*, 1938, **1**, 1389.
[3] *Naturwissenschaften*, 1938, **26**, 96.
[4] *Brit. med. J.*, Sept. 10th, p. 557.

foetuses were found in seven implantation sites. A test on one rabbit with diethylstilboestrol suggested that its denidatory effect is less than that of ethinyl oestradiol.

"The authors add that everything known about the menstrual cycle of primates suggests that its hormonal control is the same as in the cycles of lower animals, and that it is extremely probable that the factors governing the implantation of the fertilised egg are fundamentally similar in women and other species. The experimental conclusions arrived at above should thus in their view be applicable to women, though the fact that very large amounts of oestrogen are excreted by pregnant women makes it likely that the period during which administration of an oestrogen might be effective would be relatively much shorter than in rabbits. Attention has already been called in our columns[5] to possible applications in veterinary practice and animal husbandry, where it has been shown that in many respects the action of diethylstilboestrol qualitatively resembles that of natural oestrogens. Application to clinical medicine is in the hands of the Therapeutic Trials Committee. We are at present in the dark as to whether these synthetic products may not have other harmful effects which will impair their essential usefulness."

[5] *Lancet*, August 20th, 1938, p. 423.

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The views expressed in letters addressed to the Editor represent the personal view of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

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TROPICAL SOIL EROSION

To the Editor of the Veterinary Record

Sir,—At last soil erosion would appear to be coming into its own and is now enjoying considerable publicity. It is, to use the expression, "popular," and I am afraid that the zealous may do considerable harm by magnifying the importance of certain factors and working on these to the exclusion of others before there has been time to judge their relative importance. There is also a danger of generalisation; factors in soil erosion that may appear to occur in certain areas in, say, Kenya, may not occur in South Africa or even elsewhere in Kenya itself; again they may not be applicable to the same climatic and soil conditions.

Colonial history reveals many instances where works have become popular and suffered considerable harm by the pace being forced. For example: Some years ago trypanosomiasis research in East Africa became popular; it could not stand the pace imposed on it with the result that interest in it declined—fortunately this movement was arrested in time and this research assumed its natural place in the scheme of things. Again, another subject that is now popular in East Africa is education; hundreds of thousands of pounds are being spent on native universities and there is a danger that few Africans of the required standards will be found to fill them and the whole structure will become top-heavy.

There can be no dispute as to the chief causes of soil erosion, they are the destruction of forests, grass fires and bad methods of cultivation. The native may start with a forest, he clears and burns a selected plot, cultivates it for a year or so until it becomes exhausted and then abandons it for another patch. The abandoned area is generally fired every year, few trees can grow, when it has sufficiently recovered it is cultivated again.

In areas where forests have wholly or partly disappeared, grass fires sweep through the country in an alarming manner during the dry season; all grass and young trees are destroyed and the soil burnt, the tropical sun carries on the work of humus destruction and when the rains come there is nothing to hold what soil remains. In a comparatively few years there is no humus left and when this stage is reached nothing can grow, the rainfall diminishes and in the absence of vegetation most of it runs off with resulting erosion—a vicious cycle indeed.

Up to now I have blamed the native but in certain areas Government Agricultural Departments have hastened the process for they introduced the plough and encouraged bush clearing and burning in an endeavour to get increasing crops of cotton, etc., grown. The plough, therefore, would appear to be a subsidiary factor in tree destruction. When the hoe is used fewer trees are destroyed and less wash occurs.

Again, in their haste to get land under cultivation, Agricultural Departments have often taken the easier road and followed the native; instead of encouraging the cultivation and draining of swamps and valleys and so freeing the country of malaria and other diseases, they have gone on encouraging the cultivation of the high land. The result to-day is that many of the hills and ridges are now bare rock and are lost for ever to agriculture.

It is a well-known fact that in order to retain soil and prevent flooding and erosion in the valleys, the tops of all hills and high ground must be covered in forest, also in those countries where desiccation has a natural tendency to increase, a far greater proportion of forest to open country is necessary than elsewhere.

To control soil erosion the primary causative factors are the ones to tackle. Grass fires should be prohibited or controlled, re-afforestation should proceed apace especially on hills, etc., terracing or ridging should be practised in cultivated areas where erosion is great and plots should be planted with a suitable grass before being abandoned. If the above measures alone were vigorously practised, in a few years many areas would not be recognisable.

For years Conservators of Forests and Directors of Geological surveys in East Africa have been preaching these facts; theirs were "the voices crying in the wilderness," the time was not ripe for such advanced ideas, and long-range policies were not popular with the heads of local governments, perhaps because money spent on something that would give immediate results was considered more attractive.

It remained for the Agricultural Advisor to the Colonial Office—whose agricultural departments overseas have been some of the greatest offenders—to choose the psychological moment and start the campaign against soil erosion, but he would appear to be endeavouring to put the major part of the blame on stock.

If the methods for dealing with soil erosion outlined above were adopted, it is certain that erosion due to stock would be infinitesimal. Given unburnt areas with a more even distribution of drinking places—more bore-holes would assist here—stock would not be concentrated in the few areas of permanent water. It is this concentration on top of burning that leads to the formation of stock tracks and apart from damage caused by goats this is about the only thing for which stock can be blamed; even tree destruction by goats would be of little importance if the measures outlined above were adopted.

With efficient disease control stock tends to increase but given improved pastures and adequate water supplies, overstocking will become apparent in the stock themselves before they can reduce the soil covering to such an extent that erosion becomes serious. The solution of this apparent problem of stock tracks is to increase the water supplies rather than reduce the stock; much land could carry twice the stock population if sufficient water was available. No one denies that it would benefit many herds if their owners culled them more thoroughly, but economic pressure combined with intensified educational propaganda is the method of choice rather than the totalitarian method of enforced slaughter. This enforced slaughter of stock which to natives means far more than we in these islands can realise, is likely seriously to upset the good relations and confidence in our administration that has been laboriously built up.

Finally, I should perhaps have mentioned before that in the past some people have advocated grass-burning on the grounds that they have seen improved crops resulting; this of course comes within the scope of fertilisation and agricultural practice and has nothing to do with the wider issue of soil erosion.

Yours faithfully,

R. C. U. Fisher.

London.

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THE TICK PROBLEM

To the Editor of the Veterinary Record

Sirs,—Dr. J. MacLeod in his article upon the Tick Problem in the *Veterinary Record* of September 24th, 1938, gives a very good summary of our present knowledge of the bionomics of the sheep tick (*Ixodes ricinus* L.), a subject upon which he is one of the leading authorities, but with certain of his criticisms we are not in agreement. These criticisms are directed to statements taken from summaries of lectures given by one of us (Moore), which were incomplete and did not give either the theoretical basis or the experimental details upon which our views were based. We should like, therefore, to give a brief explanation of the theoretical data upon which we base our inferences.

Moore's statement that, given a suitable breeding ground, the tick population will be directly proportional to the number of available hosts, with which Dr. MacLeod does not agree, is based upon Liebig's Law (Chapman, 1931) which states that, if a multiplicity of factors are present and only one is near the limits of toleration, then this factor will be the controlling one. The presence of a suitable breeding ground presupposes that the environmental conditions (temperature, humidity, etc.) are favourable. For a stable population we must have constancy in the balance of the environmental and biotic factors. In the case of the tick, we have no known natural enemy (parasite) in this country, so that food becomes the principal biotic factor. If one of the biotic factors (food) is increased by the addition of more hosts, then the number of ticks will increase.

The importance of the food supply has been established experimentally by workers at the Moredun Institute, as reported by Dr. MacLeod himself in the *Transactions of the Highland and Agricultural Society,* 1933. A strip of land upon a heavily tick infested pasture was fenced off with game-proof netting, and the entry of all animals with the exception of birds and small vermin was prevented. After two years only an occasional tick was upon the experimental strip.

Dr. MacLeod states that ticks are imported annually into the Lothians of Scotland and other low ground sheep farms upon which there is sufficient food supply and the ticks do not become established. In this case we must presume that the environmental conditions are not suitable for establishment.

Several sheep farmers in the north-east of Scotland have stated that they consider overstocking of their sheep pastures is one of the causes of the sudden increase in the tick population in their districts. With our present knowledge we do not know how far this statement is true, but if it is ultimately found to be correct, then, in all probability, it is due to the food factor.

Dr. MacLeod contends that our statement that "when a parasite with no known natural enemies invades fresh territory then the pest survives so long as there is food available" is not in agreement with the recognised principles of insect ecology. This requires careful consideration. The fact that the pest invades fresh territory and multiplies, indicates that the environmental conditions are suitable, and food supply becomes the controlling factor. There are many cases of parasites being introduced into new areas and the population has reached alarming levels until a controlling factor has been introduced. An example of this is the introduction of the sugar cane leaf hopper (*Perkinsiella saccharicida* Kirk) into the Hawaiian Islands. This insect had apparently no biotic resistance in the form of parasites, and the new environment presented a minimum of physical resistance. As a consequence its rate of production rose practically to the limit set up by its own physical powers. Later when parasites were introduced, the pest was reduced to numbers which were not of economic importance.

The activity of the tick has been stated by MacLeod to be solely dependent upon the temperature. However, Olenev (1927) has reported that ticks under certain conditions frequently leave the tips of the foliage and bury themselves in the mossy cover, and he explained this action was due to the lack of moisture. Under these conditions we must have at least two factors: (1) temperature, (2) humidity. The factors responsible for the continuous summer tick activity in north-east Scotland, have not been worked out, but we think that the humidity factor is certainly important.

Our recommendation of a derris bath to control the sheep tick was one part of derris root containing 5 per cent. rotenone to 500 parts of water. Unfortunately, in the report on which

Dr. MacLeod relies, the standard of the derris root was omitted.

In the control of tick infestation, Dr. MacLeod refers to "the wanton and wholesale slaughter of the native herds of red deer," and questions whether this will have any effect upon the control of ticks.

We would like to refer him to the method of tick control which has been advocated by pest control workers, including himself (1933), namely, the combination of the starvation and chemical treatment methods. This method, which we have adopted, entails the removal of all mammalian hosts so far as it is possible, from the grazing with the exception of the animals which are to be chemically treated.

The only forest in which we have advised the slaughter of deer is one which is enclosed by a deer fence and extends to 20,000 acres. Since control measures were adopted in July, 1937, 1,100 deer and 8,000 hares have been shot. Some of the deer shot in July, 1937, were examined by us, and so great was the number of ticks that we found it impossible to make a complete count of the total number. By counting the number on representative areas over the body we estimated there were between 3,000 and 4,000 adult female ticks upon each animal. The sheep grazing on part of this forest were found to have an average of over 100 adult female ticks in July, 1938.

Under these conditions, if control of the pest was to be obtained, we realised the starvation method would have to be rigorously applied before any chemical treatment of the domesticated animals could be undertaken. Although the deer tend to concentrate the tick population, it is not safe to assume that the deer play little part in affecting its general level. The lairs of the deer will form foci of infestation from which large numbers of ticks will be carried to the surrounding ground by hares, sheep, birds, and the deer themselves.

In a heavily stocked deer forest, the deer invariably invade the adjoining sheep grazings in spring, when food is scarce and tick activity is commencing. When the invasion occurs through a break in a deer fence, the deer may remain upon the sheep grazings for sufficient time to drop a large number of fully engorged females, and thus start or replenish tick infestation on sheep grazings.

Yours faithfully,
JAMES HENDRICK,
WALTER MOORE,
GUY D. MORISON.

Marischal College,
Aberdeen.
October 24th, 1938.

REFERENCES

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TREATMENT OF EQUINE COLIC

To the Editor of the Veterinary Record

Sir,—I was somewhat surprised to read in Captain O. V. Gunning's letter on the above subject that chloral hydrate will not relieve an animal suffering the pain of a severe displacement of the bowel. Pehaps he has not tried administering this drug intravenously, by which route I have, for a number of years now, found it most effective for this purpose; in fact, I consider that this is the only rational and humanitarian treatment for volvulus or torsion of the bowel. I have used for some years a 100 per cent. solution—*i.e.*, one ounce contains one ounce of chloral hydrate—with no bad results, and give enough to anaesthetise the animal completely. I think, however, that Mr. E. F. Peck's solution, as given by him in a letter to the *Veterinary Record* recently—*viz.*, 70 per cent. chloral hydrate in 1 per cent. sod. citrate—would be safer in case one accidentally placed some in the tissues outside the jugular vein.

Yours faithfully,
G. S. MUIR.

Greenmount,
Needham Market,
Suffolk.
October 30th, 1938.

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"A CASE INVOLVING MILK FEVER, TYMPANY AND EVERTED UTERUS"

To the Editor of the Veterinary Record

Sir,—The compilation of clinical data and their publication in the *Record* should not lay one open to criticism from a fellow practitioner, and I hope, therefore, that I shall be forgiven for offering some remarks on the communication from Messrs. Wilson and Hobbs in your issue of October 22nd.

I note that the cow was on her near side and in this connection may say that I have found that pushing the animal over to the off side is often an effective means of relieving tympany. Although it may at times be necessary to use a trocar and cannula, one must realise that there is a great danger of stomach contents infecting the peritoneum. The passing of a probang is often, though not always, effective and in my opinion less dangerous.

Regarding suturing the vulva, I cannot condone this practice. If the womb is replaced "perfectly" it is unnecessary. If it is not and the womb is again everted into the vagina I cannot imagine any tape or vulva tissues withstanding the pressure that in the past I have fought against when replacing a womb. Thirdly, the introduction of a tape causes an easily infected wound. The wound must cause irritation with the passing of urine, etc., and therefore may give rise to undesirable straining.

Finally, out of five cases that I can remember with all three conditions present, two have eventually proved fatal, so perhaps I should not criticise.

Yours faithfully,
T. J. MARGARSON.

Camden House,
London Road,
Stroud, Glos.
October 24th, 1938.

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CASTRATION BY CORD-CRUSHING TECHNIQUE

To the Editor of the Veterinary Record

Sir,—As one of the first in this country to use the above technique and as a continuous user of it up to date, I must completely disagree with Mr. W. A. Smith's remarks in to-day's *Record*. Having used it on some thousands of animals, sometimes over three hundred in a single morning, and never having had a death, I cannot think

it is a cruel method. There is no tetanus, no haemorrhage, no septic infection, and no danger if a scrotal hernia happens to be present. Before using this technique death was not uncommon from castration especially in sheep six months and older. I always thought that using the knife on a full-grown ram was terribly cruel and I hated the job. As regards speed in operating, I think I could keep time with any man using the knife and emasculator whether the animals were wild "suckers" or not. I deny that the animal suffers pain for weeks after. If this is so, how is it that farmers who go in for early fat lambs are so keen to have them "nipped," as they call it, so as they can get them on to the market earlier? It is generally impossible immediately after the operation to tell that an animal has been touched: some walk a little stiffly, and lambs may lie about more for two or three days, but they keep feeding and are up and away sooner than after the knife.

Mr. Smith's complaint that farmers are using the instrument themselves is quite justified, but what are they to do? Many hundreds of them cannot get veterinary surgeons to do the work, irrespective of cost. I could supply Mr. Smith with a fairly comprehensive list of practitioners, past and present, both old and young, who refuse to castrate an animal, and not for sentimental reasons. If one of them gets an order to castrate, they just get in touch with a local castrator and sometimes accompany him, but more often just send him to do the work.

I consider it is impossible to castrate a horse by the cord-crushing method: frequently I have specially thrown what I deemed to be suitable subjects, such as older horses with well dropped testicles, but have always failed and had to take the testicles by other methods. Any animal with the semblance of a testicle in his scrotum is not a gelding and is ruined as a marketable animal. This is perhaps the greatest drawback to farmers themselves using the cord-crushing instrument—there are so many half-castrated animals in the country and especially is this seen in Irish bullocks in recent years. An expert can have an occasional miss if he is not careful, and should discard his instrument as soon as it shows signs of wear.

Readers of the *Record* not conversant with farming conditions must be beginning to think that we practitioners are a very cruel lot, first docking and now castration. Our critics seem to accuse us of working against nature but I should like to remind them that nature can be very cruel, and really we as well as the stockowner spend the greater part of our time trying to combat the ravages of nature.

Yours faithfully,
W. A. Campbell.

Boroughbridge, Yorks.
October 22nd, 1938.

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"CHILL"

To the Editor of the Veterinary Record

Sir,—During a most informative talk on "Mastitis in the Milking Cow" before the Mid-West Division at Bath on October 21st, Dr. Stableforth used, I presume advisedly, the term "chill." I must admit that I was surprised. My question as to what he meant was met with laughter and was not answered. At a time when veterinary nomenclature is being so widely discussed can anyone, preferably Dr. Stableforth, inform me what is the academic import of the word? If not, should it not be omitted from our discussions?

I hope to get a serious reply to my query.

Yours faithfully,
T. J. Margarson.

Camden House,
London Road,
Stroud, Glos.
October 24th, 1938.

DISEASES OF ANIMALS ACTS, 1894 to 1937, and AGRICULTURE ACT of 1937 (PART IV)

SUMMARY OF RETURNS

Period.	Anthrax.		Foot-and-Mouth Disease.		Parasitic§ Mange.		Sheep Scab.	Swine Fever.	
	Outbreaks confirmed.	Animals attacked.	Outbreaks confirmed.	Animals slaughtered as diseased or exposed to infection.	Outbreaks reported by the Local Authorities.	Animals attacked.	Outbreaks confirmed.	Outbreaks confirmed.	Swine slaughtered.
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Period 1st to 15th Oct., 1938	19	29	1	66	—	—	1	54	43
Corresponding period in									
1937	23	25	2	178	1	1	8	35	18
1936	17	23	3	275	2	2	2	92	63
1935	21	21	6	855	1	16	9	113	74
Total 1st January to 15th Oct., 1938	647	1,013	163	20,699	44	74	126	584	428
Corresponding period in									
1937	553	662	22	5,097	100	138	147	834	515
1936	355	421	8	723	98	240	169	1,552	1,103
1935	282	328	46	11,575	87	188	278	1,591	948

Note.—The figures for the current year are approximate only.

§ Excluding outbreaks in Army Horses.